

British Columbia
MANUAL OF
RESOURCES AND DEVELOPMENT

January 1980

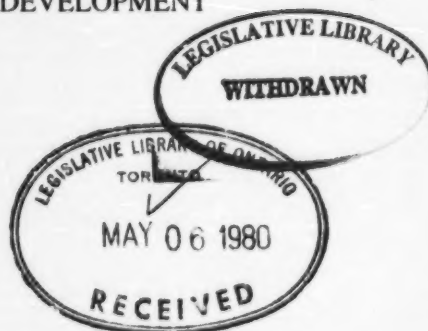


Province of British Columbia

MINISTRY OF INDUSTRY AND SMALL BUSINESS DEVELOPMENT

Parliament Buildings

Victoria, British Columbia





FOREWORD

The purpose of the BRITISH COLUMBIA MANUAL OF RESOURCES AND DEVELOPMENT is to include in one convenient publication a visual presentation along with concise, current data, of the resources and economic activities of the Province. The Manual, as the title suggests, deals with the resources - human, forest, mineral, agriculture, fish and water - of British Columbia and their development. It also contains sections regarding physiography, climate, geology, recreation and various other aspects of the economy of the Province.

The Manual was first published in 1959 by the then Economics and Statistics Branch of the Department of Industrial Development, Trade and Commerce. The need for a brochure of this format became apparent from the many requests for information about British Columbia received by the Ministry. It is suggested that the reader use this booklet as a convenient reference for the basic information desired, and to refer to other publications of this and other ministries for broader, more detailed analysis of any particular subject.

Much of the information contained in this Manual has been collected from other Provincial Ministries including Ministries of Environment; Forests; Energy, Mines and Petroleum Resources, Agriculture; Transportation and Highways; and Lands, Parks and Housing.



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ECONOMIC HISTORY

The Province of British Columbia entered into Confederation with Canada on July 20, 1871. It has had an exciting and fascinating economic history and has before it a dynamic, rewarding economic future.

British Columbia has an area of 948,596 square kilometres (366,255 square miles). It is approximately 1,450 kilometres (900 miles) long and averages 640 kilometres (400 miles) across. It extends from the 49th parallel on the south to the 60th parallel on the north, and from the Pacific Ocean and the Alaska Panhandle on the west to Alberta's western boundary on the east. The Yukon and Northwest Territories are its northern neighbours and the American States of Washington, Idaho and Montana, its southern neighbours.

The earliest reported trade was in sea otter skins to China. This trade began in 1778 when Captain Cook sailed into Nootka Sound on the west coast of Vancouver Island. While he refitted his ships, replacing the rotting masts with Douglas fir timber, the crew gathered skins of the sea otter which abounded along the coast. A ready market for the skins at high prices was found in Canton, China, which the expedition visited on its return journey to England. Captain Cook's narrative of the wealth in furs on this coast brought many fur traders and the trade flourished over the next hundred years. Captain John Meares established a trading post at Nootka in 1788 and that year loaded a vessel with furs and a deckload of spars for shipment to China - the first reported trade in timber from British Columbia.

Meanwhile, the great fur trading companies worked westward across Canada, reaching beyond the mountains into British Columbia. Alexander Mackenzie, representing the North West Company, crossed overland and in 1793 reached the Pacific Ocean at Bella Coola. The first trading post in mainland British Columbia was Fort McLeod established by Simon Fraser in 1805. He founded Fort St. James on Stuart Lake in 1806 and Fort George at the confluence of the Nechako and Fraser Rivers the following year, all in the name of the North West Company. The North West Company and the Hudson's Bay Company amalgamated in 1821 and in 1843 the Hudson's Bay Company established Fort Victoria as its western depot, anticipating the loss of its earlier western depot at Vancouver, Washington. Those expectations were realized in 1846 when the Oregon Treaty established the United States - British Columbia border, two hundred miles to the north of the lower Columbia River at the 49th parallel. As the trading posts developed, population increased and agriculture, lumbering and fish processing became established.

The first mechanized sawmill in British Columbia was established in 1848 by the Hudson's Bay Company near Victoria. Pulp production began in 1909, although 1912 is considered the birthdate of the industry when three new plants went into production and newsprint production was started at Powell River. Fraser Mills near New Westminster produced the first plywood in British Columbia in 1913.

The occurrence of the Fraser River gold rush commencing in 1858 attracted thousands of people and Victoria, as the supply centre, was suddenly transformed from a trading post to a city. New Westminster, Hope and Yale also came into prominence as a result of the gold rush. Mineral resource exploration and development has played an important role in the economic history and

growth of British Columbia and has opened up many areas of the Province. Coal was first mined in 1836 on Vancouver Island, placer gold was found in quantity in 1857, lode gold and copper were discovered in 1889, lead and zinc were located at Kimberley in 1892 and gas and oil were found in the Peace River District in the late 1940's.

On July 20, 1871, the Province of British Columbia entered into Confederation with Canada. One of the conditions of the confederation was that a transcontinental railroad be built to join British Columbia with eastern Canada. Completion of the railroad in 1885 brought expanded markets for British Columbia products and manufacturing became increasingly important. Completion of the Panama Canal in 1914 opened new markets in Europe, giving further impetus to the establishment and expansion of pulp, paper and lumber mills, fish packing plants, fruit and vegetable canneries and smelters, plus expansion of port facilities to handle the export of grain from the Prairies. Population growth also accelerated as the railroad encouraged greater migration of settlers to British Columbia.

Economic activity in British Columbia increased as a result of World War II during which base metals and forest products were in strong demand. Construction of the Alaska Highway by the Americans during the war and later track extensions, modernization of equipment and improved services of the Pacific Great Eastern Railway (now British Columbia Railway) proved of great benefit in opening up the northern and central sections of the Province.

Strong world demand for the products of British Columbia's resource-based industries brought tremendous economic growth following the war. Improved technology in all phases of the forest industry has increased utilization of the Province's forest resources while also increasing efficiency and productivity. This has made possible a larger annual allowable cut without depleting the forests of British Columbia and has permitted the development of large integrated forestry complexes, not only in the coastal areas but also in the Interior. Similarly, rising demand and technological advances in conjunction with improved efficiencies in handling and transportation - unit trains, bulk storage facilities, super cargo carriers - have allowed the development of some of the lower grade ore deposits in the Province, particularly of copper and molybdenum, and vast coal deposits. Agriculture has also benefitted from advanced technology. Irrigation, use of modern machinery and equipment, fruit tree selection, and high standards in poultry and animal husbandry have contributed to greatly improved productivity in this sector.

The United States and United Kingdom were the major markets for British Columbia products until 1967 when Japan replaced the United Kingdom as the second ranking single trading partner. In recent years, other Pacific Rim countries, with approximately half of the world's population, have become important trading partners and represent a high proportion of the current and potential trading volume through British Columbia ports. Trade with the United Kingdom, a member of the European Economic Community (EEC), now ranks fourth behind total trade with all other EEC countries. Recent and planned major port developments in the Prince Rupert and Vancouver areas, backed up by continuing rail and road improvements and an increasing industrial capability will enhance the Province's ability to serve expanding world markets.

BRITISH COLUMBIA



PHYSIOGRAPHY

British Columbia, the westernmost Province in Canada, has a most diverse physiography composed of the Cordillera and Great Plains Regions. The Cordillera in British Columbia consists of three broad units - the Western System, the Interior System of scattered plateaux and mountains, and the Rocky Mountain System in the east.

The Western System consists of: (1) the Insular Mountains appearing in the Queen Charlotte Islands and Vancouver Island, and the St. Elias Mountains in the northwest corner of the Province where Mt. Fairweather (4,663 metres, or 15,300 feet), the highest peak, is found; (2) the Coastal trough forming the east coastal plain of Vancouver Island and the delta plain of the Fraser River, (3) the Coast Mountains which extend northwesterly and average 160 kilometres (100 miles) wide. Rising to the east and south of the Fraser River in the southeast corner of the Western System are (4) the Cascade Mountains.

Further inland is the Interior System dominated by the extensive Interior Plateau which, in the south is 50-65 kilometres (30 to 40 miles) wide and ranges between 1,200 and 1,800 metres (4,000 and 6,000 feet) above sea level. Broadening to 320 kilometres (200 miles) and ranging between 600 and 1,200 metres (2,000 and 4,000 feet) elevation in the northern section, the Interior Plateau extends 800 kilometres (500 miles) in a northwesterly direction. It is bordered on the east by the Columbia Mountains and the Rocky Mountain Trench, and on the west by the Coast and Hazelton Mountains. The northern third of the Interior System comprises the smaller Yukon and Stikine Plateaux surrounded by a series of mountain systems.

The Rocky Mountain Trench runs from the southeast sector of the Province in a northwesterly direction to the Yukon border. It is 3 to 25 kilometres (2 to 15 miles) wide and contains a series of rivers and lakes as well as the Peace River reservoir (Lake Williston) and Mica reservoir (McNaughton Lake). The Rocky Mountain System forms the eastern wall of the Trench and separates the Province of Alberta from British Columbia south of the 54th parallel. Mt. Robson, reaching an elevation of 3,957 metres (12,972 feet), is the highest peak in the British Columbia portion of the "Rockies."

The northeast corner of the Province east of the Rocky Mountains is a relatively flat region and is part of the Great Central Plains of North America.

There are many rivers in the Province which drain the interior regions and rise in the glacial and snowcapped mountains. The Fraser and Columbia Rivers both originate in the Rocky Mountain Trench and flow southward. The Fraser enters the Pacific Ocean near Vancouver while the Columbia extends south of the border and reaches the ocean in the United States. The Skeena River rises in north central British Columbia, runs southwest and empties into the Pacific Ocean near Prince Rupert. The Peace and Liard Rivers, which originate in the Rocky Mountain Trench, are tributaries of the Mackenzie River flowing north to the Arctic Ocean. There are also many large and beautiful lakes in the Province. Babine, Kootenay, Atlin, Stuart and Okanagan Lakes are among the largest natural ones. Williston Lake, created behind Bennett Dam on the Peace River, is now the largest body of water in British Columbia. Other large man-made (or enlarged) lakes include the Nechako reservoir, McNaughton Lake and Arrow Lakes.

PHYSIOGRAPHY



GEOLOGY

The rock formations of British Columbia range in age from the Precambrian era (500 million years old) to recent, some lava flows being only a few hundred years old.

The Precambrian era rocks, chiefly sedimentary, occur in the south-east part of the Province. An extensive belt of metamorphic rock, schists and gneisses of undetermined age, underlies the eastern part of the Interior Plateau and parts of the Monashee, Selkirk, Cariboo and Omineca Mountains.

Palaeozoic era (230 million-500 million years old) and Proterozoic era (over 570 million years old) rocks form the main ranges of the Rocky Mountains and underlie much of the country along and west of the Rocky Mountain Trench. Late Palaeozoic era sedimentary and volcanic rocks are exposed in a narrow belt that extends northward along the Fraser River to the Omineca Mountains. Similar rocks occur in the northwest, between Atlin and Teslin Lakes.

Rocks of the Mesozoic era (65 million-230 million years old) are widespread. Sedimentary and volcanic formations occur throughout the central part of the Province between the Coast Mountains and the Rocky Mountain Trench, and on Vancouver and Queen Charlotte Islands. Mesozoic era stratified sedimentary rocks, mainly Cretaceous in age, occur east of the Rocky Mountain Foothills and along the east coast of Vancouver Island.

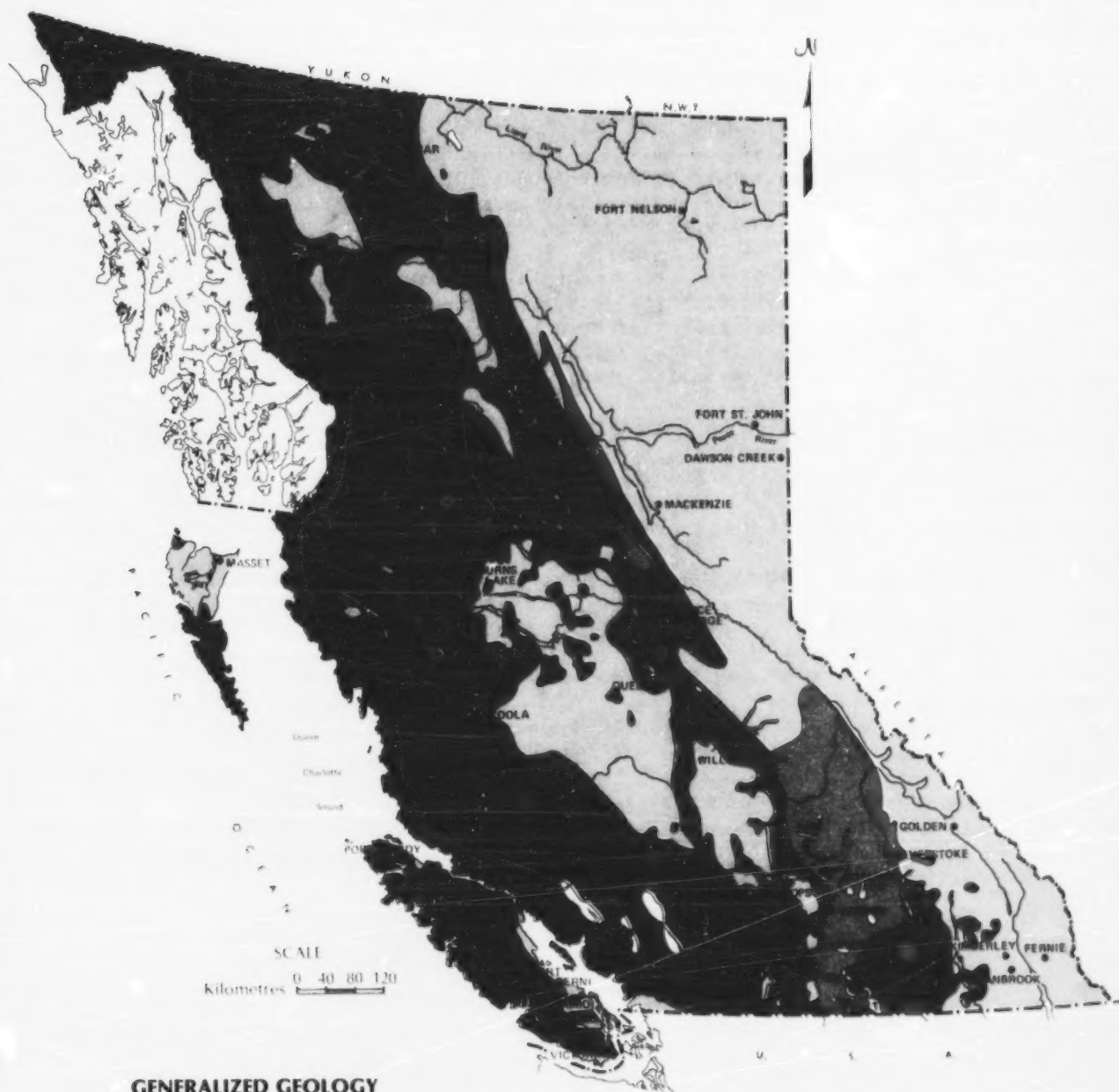
Granitic intrusions ranging from small plutons to large composite batholiths of the Cretaceous and Tertiary periods intrude older rocks in a belt corresponding to the Coast Mountains, in another corresponding to the Omineca-Cassiar Mountains, and in an area extending across the southern part of the Province between the Fraser River and Kootenay Lake.

Cretaceous and Early Tertiary rocks, mostly lava flows and associated volcanics, overlie older formations in the Interior and Stikine Plateaux, and on Graham Island.

Mineral deposits are widespread with copper forming the greatest number. It occurs as massive sulphide deposits in the Coast and Insular belts, in porphyries in the Interior belt, and in widely distributed skarn deposits. Copper, molybdenum and tungsten are associated in porphyry deposits in the Interior. Lead-zinc mineralization occurs as stratiform deposits in the late Precambrian and Cambrian rocks of southeastern British Columbia. Silver and silver-lead-zinc veins are localized in the Slocan area. Iron as magnetite occurs mainly in skarns in the Insular belt or associated with porphyry copper in the Interior belt. Gold is widely dispersed in veins and as an accessory in other classes of deposits throughout all mineralized regions.

Oil and gas occur in quantity in Palaeozoic and Mesozoic formations east of the Rocky Mountains in the northeastern part of the Province. Some petroleum exploration has been undertaken on the continental shelf west of Vancouver Island and in Hecate Strait. Extensive coal reserves are present in Cretaceous rocks of the Rocky Mountains, in isolated coal basins in central British Columbia and along the east coast of Vancouver Island.

GEOLOGY



GENERALIZED GEOLOGY

STRATIFIED ROCKS

- Mid-Tertiary to Recent
- Cretaceous and Early Tertiary
- Jurassic
- Triassic
- Paleozoic
- Proterozoic

METAMORPHIC ROCKS

INTRUSIVE ROCKS

- Cretaceous and Tertiary
- Triassic and Jurassic
- Ultramafic rocks, mainly early Mesozoic age

CLIMATE

The Coast Region has the abundant rainfall and mild temperatures associated with a maritime climate. Because of the nature of the terrain, high mountains and long fiords, considerable variation does occur. Precipitation on the West Coast ranges from 130 to 380 centimetres (50 to 150 inches) per year, with the heaviest rain occurring on the windward slopes in the autumn and winter months. The leeward slopes have the lowest annual rainfalls. The range in temperatures is smallest on the outer coast, due to the maritime effect, while the sheltered inner coasts are somewhat warmer in summer and cooler in winter. There is also a distinct variation from south to north.

The Southwest coast, made up of the Lower Mainland and the southeast coast of Vancouver Island, has a very pleasant climate. Approximately 65 to 130 centimetres (25-50 inches) of rain falls per year, mostly in the fall and winter. Summer can often be a period of relative drought. The area has a long frost-free season and very mild winters.

The Interior Region, lying east of the coastal mountains and west of the Rockies, has a predominantly continental type of climate. Except for the northern section, it is not as rigorous as the Canadian Prairies. Considerable variation in climate occurs, especially in winter as Pacific storms bring relief from cold spells.

The Southwest Interior, lying just east of the high coastal mountains, has the driest and warmest climate of the whole province. Annual precipitation ranges from less than 25 centimetres (10 inches) to about 50 centimetres (20 inches) in the valleys. Temperatures in summer may reach 38 degrees Celsius, while the coldest winter months have means below zero degrees Celsius.

The Southeast Interior, made up of the Columbia Mountain System and associated valleys, has a more extreme climate than the southwest interior. Although precipitation in the valleys remains fairly light, falls on the ridges are heavy and the mountain passes may receive well over 500 centimetres (200 inches) of snow in a season. There is the characteristic high annual temperature range of a continental climate, from well below zero degrees Celsius in the winter to as high as 38 degrees Celsius in the summer.

The Central Interior has a distinct continental climate, with more extreme temperatures and higher precipitation than in the south. Temperature extremes range from 32 degrees Celsius in summer to as low as minus 40 degrees Celsius in winter. Annual precipitation ranges from 50 to 75 centimetres (20-30 inches), while snowfall totals approximately 190 centimetres (75 inches) for the winter season. The frost-free period is short.

The Northern Interior is a vast area about which factual meteorological data are very limited. Long, cold winters and short, cool summers are characteristic. Precipitation is lightest in the western sections in the lee of the coastal mountains and heaviest in the foothills and slopes of the Rockies.

The Northeast Region is a northern extension of the western prairie region of Alberta. Its climate is continental, more extreme than the area of northern British Columbia to the west. However, it does have long hot summers and a frost-free period long enough to grow crops.

CLIMATE



LEGEND

- Coast Region
- Interior Region
- Northeast Region

FORESTRY

The extensive forest resources of British Columbia have played a dominant role in the economic growth of the Province since the beginning of the forest industry in 1846. A high proportion of the forests consist of softwood species (coniferous) which are in demand throughout the world in the form of lumber, newsprint, pulp and paper products and shingles and shakes. Forest management under the guidance of the British Columbia Ministry of Forests ensures that a balance is maintained between the amount of timber cut and the forest's ability to reproduce. This management ensures that the forests of the Province will produce timber on a sustained yield basis, thereby contributing to growth and stability of the British Columbia economy.

In the early days of the industry logging camps were established along the coast to harvest the timber which was easily accessible by water. Mills were built in protected harbours where log storage and transportation would be facilitated, or where water power could be easily harnessed. Powell River, Port Alberni and Chemainus are examples of such mill centres which are still flourishing today.

Extensive development of the forest industry in the Interior of British Columbia commenced in the years following World War II as demand for forest products increased, as rail and highway transportation extended into the Interior Region, and as technological advances made the harvesting of the smaller sized Interior timber more economic.

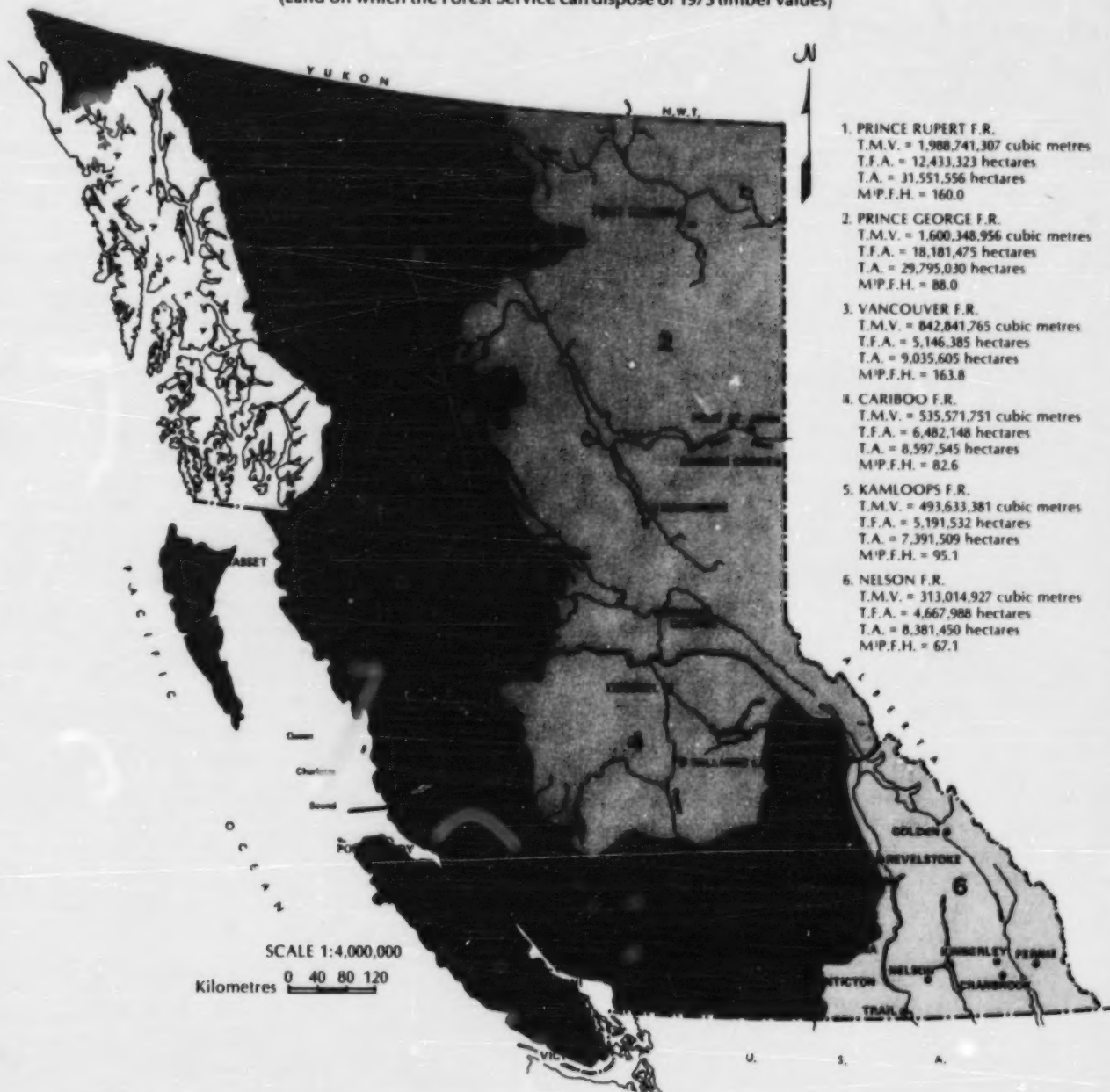
The Ministry of Forests estimates that the Provincial forest land covers 521,029 square kilometres or 55 percent of British Columbia's total area of 948,596 square kilometres. This forest land supports more than 8,080 million cubic metres of mature timber, of which 97.4 percent is highly marketable softwood. Currently, 94 percent of the forest land is owned by the Province, 5 percent is in the hands of various companies and private individuals, and the remainder is controlled by Federal interests. British Columbia has about one half of Canada's softwood inventory.

The Province may be divided into two forest regions as a result of topographic and climatic conditions. The Coastal Forest occupies the western slopes of the Cascades, the Coast Ranges, the Queen Charlotte Islands and Vancouver Island. Mild winters, moderate summers, and abundant rainfall of over 250 centimetres a year have given rise to very productive forests of Western Hemlock, Douglas Fir, Western Red Cedar, Grand and Amabilis Fir. Hemlock dominates the Coastal Region's species accounting for 42 percent of the mature coniferous inventory. The volume of timber per forested hectare in the Coastal Region averages 425 cubic metres.

The Interior forest, east of the Cascades, comprises subalpine forest, cariboo parklands, boreal forest, the dry and wet interior belts and the Peace River parklands. The climate is characterized by relatively severe winters and moderately warm summers. The average volume of timber in the Interior is 107 cubic metres per forested hectare. The principal species, in descending order by volume are: western hemlock (23 percent); spruce (22 percent); balsam fir (18 percent); lodgepole pine (14 percent) western red cedar (11 percent) and Douglas fir (7 percent).

FOREST RESOURCES - DENSITY

(Land on which the Forest Service can dispose of 1973 timber values)



LEGEND

- Under 80 cubic metres per forested hectare
- 80-90 cubic metres per forested hectare
- 90-100 cubic metres per forested hectare
- 100 and over cubic metres per forested hectare

T.M.V. = Total Mature Volume
T.F.A. = Total Forested Area
T.A. = Total Area
M³/P.F.H. = Cubic Metres of mature timber
per forested hectare

In 1978 an estimated 92,500 persons, or about 8.5 percent of the Province's workers, were directly employed by the forest industries. The total value of factory shipments of own manufacture in 1978 was \$6.1 billion, up 21.0 percent from 1977.

Lumber

Lumber traditionally accounts for the greatest portion of British Columbia product shipments, contributing between 35-55 percent of the total value of forest products exports, depending on the demand for lumber in relation to other forest products. Employment in the lumber component represents around 40 percent of total forest industry employment.

Lumber production in 1978 is estimated at 29.5 million cubic metres (12.5 billion board feet), representing approximately 67 percent of total Canadian lumber production.

The United States, specifically the housing market, is by far the most important market for British Columbia's lumber output, traditionally consuming 55-65 percent of the total Provincial lumber output. The Canadian domestic market represents British Columbia's second most important outlet for lumber consuming approximately 20-25 percent. Japan, the United Kingdom and other countries account for the remaining portion of the Provincial output, typically about 15 percent.

Buoyed by strong demand and the reduced exchange value of the Canadian dollar, the industry is moving into a period of large capital expenditures. Specific projects include: a \$45.7 million replacement sawmill and planer mill facility at the Crown Zellerbach Fraser Mills division; modernization of the two Tahsis Company sawmills on Vancouver Island at a cost of \$20 million over the next three years; a \$20 million sawmill modernization at the Canadian Forest Products Eburne division over two years; modernization of MacMillan Bloedel sawmills at Chemainus and Port Alberni at a cost of \$75 million over 5 years. These investment projects on the coast reflect a trend towards modernization of obsolete facilities with new equipment to handle the smaller logs which make up an increasing share of the harvest. In the Interior, the emphasis continues to be on mill upgrading to increase efficiency and productivity in all aspects of wood handling and processing.

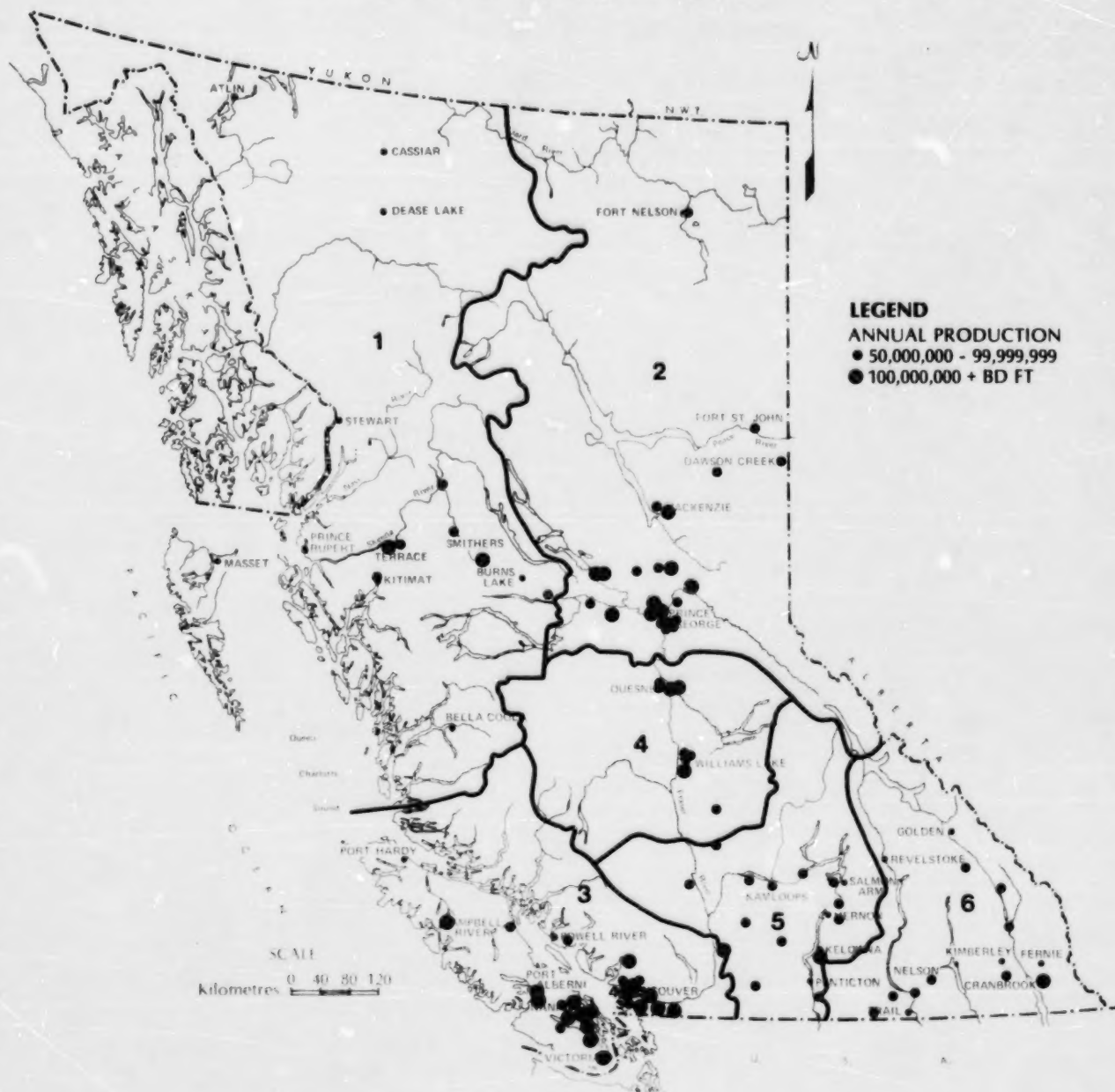
Pulp, Paper and Allied Industries

Reflecting the overall world economic recovery from the 1974-75 recession, particularly in the United States, the total value of paper and allied factory shipments in 1978 was an estimated \$2.06 billion, up 15.0 percent from the 1977 level of \$1.8 billion.

Pulp production in 1978 was an estimated 5.34 million tonnes, up 9.5 percent from 1977. This amount represented approximately 28 percent of total Canadian production. The United States continued to be British Columbia's single largest pulp customer, receiving approximately 29.8 percent of the 1978 production. The European Common Market countries (including the United Kingdom) accounted for 38.7 percent and Japan, 16.8 percent.

MAJOR SAWMILLS

Annual Production, 1978 (By Forest Regions)



PROVINCIAL TOTAL

Number of Operating Sawmills: 716
 Rated Eight-Hour Daily Capacity: 179,005 cubic metres
 Source: British Columbia Forest Service, Victoria

1. PRINCE RUPERT F.R.

84
 14,099 cubic metres

2. PRINCE GEORGE F.R.

127
 58,227 cubic metres

3. VANCOUVER F.R.

165
 54,034 cubic metres

4. CARIBOO F.R.

47
 14,725 cubic metres

5. KAMLOOPS F.R.

168
 22,410 cubic metres

6. NELSON F.R.

125
 15,509 cubic metres

British Columbia's paper production in 1978 is estimated at approximately 2.16 million tonnes, of which the principal paper product, newsprint, accounted for 63.8 percent or roughly 1.38 million tonnes. Eighty-seven percent of newsprint production was exported, with 83.5 percent of this amount flowing to the United States market.

Employment in the pulp and paper component was approximately 21,000 in 1978 including production workers, office and administrative staff, or 23 percent of total forest industry employment.

No new pulp mills have been constructed in recent years but major expenditures have been made on equipment for pollution control and various modernization programs. Several new mills are able to utilize sawdust in their manufacturing process and most new mills are designed to operate exclusively on sawmill residues. As a result the lumber and pulp sectors of the forest industries are becoming increasingly interdependent. The Canadian Cellulose sulphite mill at Prince Rupert was converted to sulphate production at a cost of about \$100 million, because of poor sulphite markets and unacceptable levels of pollution, and began production in late 1978. Expansion of newsprint production capacity is currently underway at Powell River and expansion projects have been announced for Elk Falls, Prince George, Mackenzie, Crofton and Quesnel with additional developments anticipated.

Plywood

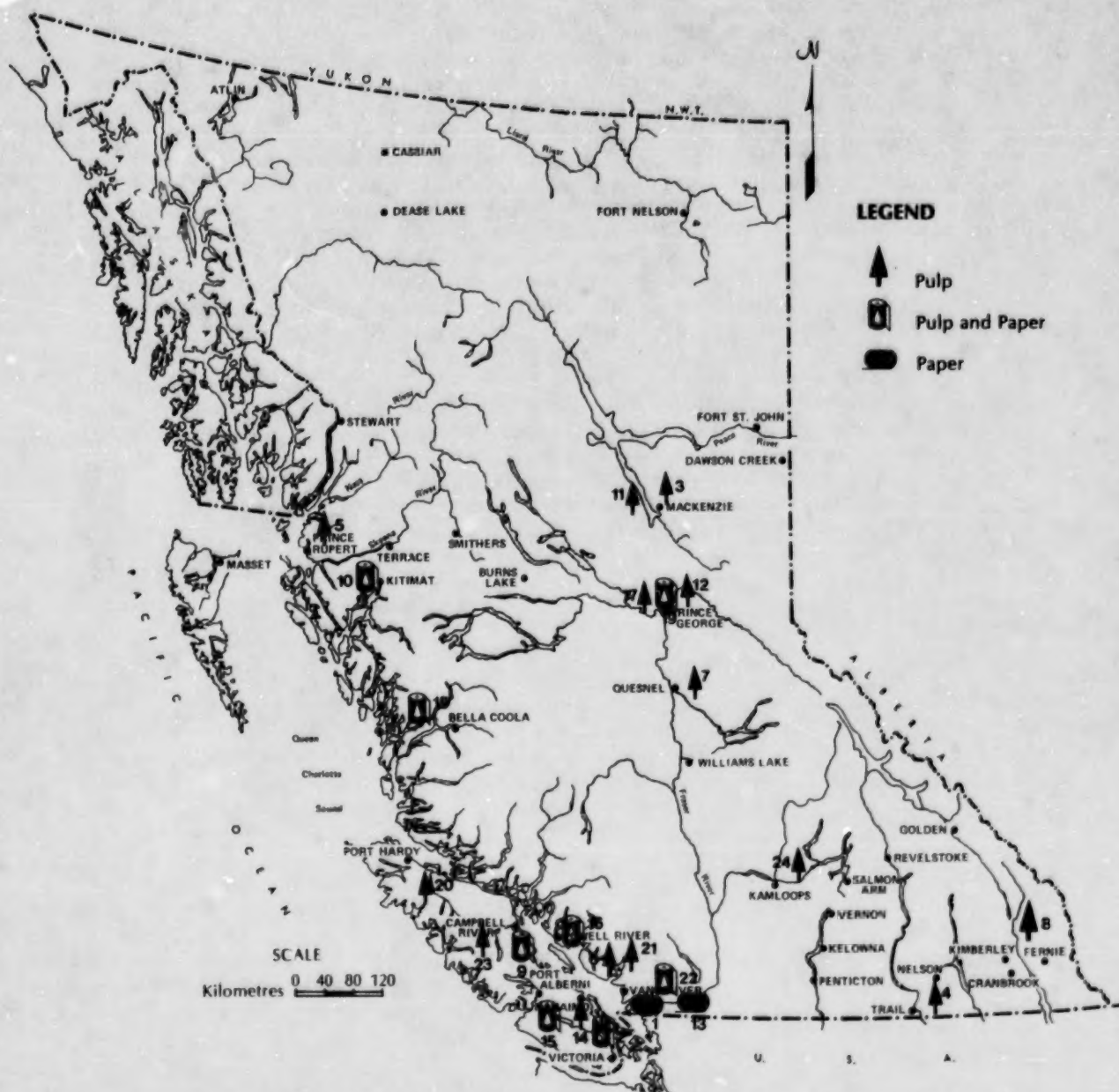
British Columbia produces about 85 percent of Canada's plywood output and the Canadian market accounts for approximately 80 percent of the Province's annual plywood shipments. Plywood output in British Columbia during 1978 reached 233.2 million square metres, an increase of 7.1 percent over 1977. Plywood exports traditionally represent a modest 2-3 percent of all forest product exports. The United Kingdom, which represents British Columbia's largest plywood export market, accounted for approximately 21 million cubic metres, or 8.7 percent of British Columbia's plywood shipments in 1978. The balance of British Columbia's plywood exports generally go to other members of the European Economic Community.

The plywood component accounts for about 9 percent of total forest industry employment in British Columbia. Technological changes have made possible the utilization of small-diameter logs, increasing the supply of raw material and making feasible veneer and plywood mills in the Interior. However, the supply of logs suitable for peeling is believed to be almost fully utilized, thereby limiting the potential for increasing the size and output of the industry.

Shingles and Shakes

Strong export demand boosted shingle and shake shipments in 1978 up 20.3 percent from the 1977 level to an estimated 3.49 million roofing squares. British Columbia generally accounts for 95 percent of Canada's shingle and shake production, and the United States represents the largest outlet for this product, particularly the large California market. This component, accounting for around 1.5 percent of total forest industry employment, is not a major employer but is one sector in which the small entrepreneur is well represented.

PULP AND PAPER MILLS



1. Belkin Paperboard limited, Burnaby
2. British Columbia Forest Products Limited, Crofton
3. British Columbia Forest Products Limited, Mackenzie
4. Canadian Cellulose Limited, Castlegar
5. Canadian Cellulose Limited, Prince Rupert
6. Canadian Forest Products Limited, Port Mellon
7. Cariboo Pulp and Paper Ltd., Quesnel
8. Crestbrook Pulp and Paper Ltd., Skookumchuk
9. Crown Zellerbach Canada Ltd., Duncan Bay
10. Eurocan Pulp and Paper Co. Ltd., Kitimat
11. Finlay Forest Industries Ltd., Mackenzie
12. Intercontinental Pulp Ltd., Prince George

13. MacMillan Bloedel Limited, Annacis Island
14. MacMillan Bloedel Limited, Harmac
15. MacMillan Bloedel Limited, Port Alberni
16. MacMillan Bloedel Limited, Powell River
17. Northwood Pulp and Timber Ltd., Prince George
18. Ocean Falls Corporation, Ocean Falls
19. Prince George Pulp and Paper Limited, Prince George
20. Rayonier Canada (B.C.) Limited, Port Alice
21. Rayonier Canada (B.C.) Limited, Woodfibre, Squamish
22. Scott Paper Ltd., New Westminster
23. Tahsis Company Limited, Gold River
24. Weyerhaeuser Canada Ltd., Kamloops

Logging

From a previous all-time high in 1973 of 70.2 million cubic metres (2,476.8 million cubic feet), the volume of timber scaled in the Province increased to 75.2 million cubic metres (2,654.4 million cubic feet) in 1978, largely because of the continued devaluation of the Canadian dollar, higher prices, improved markets and no work stoppages. The 1977 cut was 69.9 million cubic metres (2,470.9 million cubic feet). The 1978 scale represents slightly more than 75 percent of the annual allowable cut in the Province (over 100 million cubic metres), as calculated by the Ministry of Forests. Future expansion into the northern interior and logging at higher elevations, as well as the development of hardwood species, are possibilities if warranted by the market for forest products, technological sophistication, and improved access to remote areas. Improved forestry practices, such as juvenile thinning, particularly on the coast, are contributing to the expansion of allowable cuts. Forest nurseries are continually being expanded to provide for better reforestation.

The Provincial Government passed new legislation in June 1978 dealing with the British Columbia forest sector. The new Forest Act, Ministry of Forests Act, and Range Act replaced legislation dating back to 1912. Highlights of the new Acts include: revisions to logging tax legislation; incentives to licensees who practise good forest management and penalties for those who do not; provisions for intensive forest management practices; major changes in forest tenure forms; government commitment to examine forest and range resources every ten years and forest management practices every five years; and provisions for replacement of existing short-term permits by licences of up to ten years for ranchers.

Calculations of the annual allowable cut, stumpage and royalty have also come under review as a direct response to increased demand for more park and recreation areas, more stringent logging guidelines, increased costs associated with the harvesting of more remote stands, and the lower quality of those stands. At the same time the logging industry has recorded advances in productivity and utilization levels in woods operations. This has come about through development of specialized equipment for falling and transporting timber. A number of operators have started night logging under powerful arc lights and helicopter logging is becoming increasingly common where surface access to small pockets of valuable timber would be prohibitive.

The logging sector continues a trend toward investment in dryland log sorting facilities to reduce log losses and eliminate water pollution. As examples of this investment, MacMillan Bloedel is building dryland sorting operations on the Alberni Canal and at Queen Charlotte City at a cost of \$3.5 million and \$1.4 million respectively.

MATURE TIMBER VOLUMES IN BRITISH COLUMBIA
(Forest Inventory Statistics of British Columbia, 1973¹
British Columbia Forest Service)²

('000 cubic metres)³

	<u>Coast</u>	<u>Interior</u>	<u>Total British Columbia</u>
Hemlock	1,373,270	462,275	1,835,545
Spruce	176,296	1,574,191	1,750,487
Balsam	565,461	924,341	1,489,802
Lodgepole Pine	19,090	1,101,766	1,118,818
Red Cedar	745,997	167,318	913,316
Fir	275,985	254,309	530,293
Yellow Cedar	171,950	271	172,221
Larch	---	19,025	19,025
Yellow Pine	15	8,044	8,060
Total Softwoods	<u>3,335,076</u>	<u>4,534,425</u>	<u>7,869,501</u>
Aspen	114	131,326	131,439
Cottonwood	5,593	40,348	45,940
Birch	402	22,144	22,546
Alder	9,908	184	10,092
Maple	982	---	982
Total Hardwoods	<u>16,999</u>	<u>194,002</u>	<u>211,001</u>
TOTALS⁴	<u>3,354,074</u>	<u>4,728,427</u>	<u>8,080,502</u>

¹ Currently under revision.

² Includes trees over 18 centimetres diameter at breast height.

³ 1 cubic metre = .353147 cunits.

⁴ May not add because of metric conversion and rounding.

MINERAL INDUSTRY

Early exploration and development of the Province was closely associated with mineral activity. Coal was produced as early as 1836 and placer gold production is recorded from 1851. Many important mines have been discovered and the Sullivan mine, at Kimberley, ranks amongst the largest lead-zinc ore bodies in the world. It is, along with the Pine Point mine in the Northwest Territories, a major source of raw materials for the metallurgical, chemical and fertilizer complex at Trail.

The overall growth in the world demand for minerals, many of which are found in British Columbia, has been the basis for expansion of the industry to its present level. The latest methods of locating, extracting and transporting minerals have been utilized in this expansion. Discovery through geological deduction, open-pit mining, unitized trains, and deep-sea bulk loading facilities, have all been introduced to British Columbia mining practice.

Although the mineral industry has produced \$17.8 billion worth of minerals to date, about 62 percent of this amount has been produced in the last decade. The value of minerals produced totalled \$1,520 million in 1976, increasing to \$1,788 million in 1977, and reaching a new record of \$1,986 million in 1978. In 1978 the five major minerals and their share of the total value were: copper, 21.7 percent; natural gas, 20.2 percent; coal, 19.2 percent; molybdenum, 8.4 percent; and crude oil, 7.3 percent. These five minerals account for 77 percent of the total value. The table entitled "Mineral Production of British Columbia 1977 and 1978", shows the amount and value of minerals extracted in 1977 and 1978.

Metals

Generally depressed world economic conditions during the past few years have created very uncertain markets for many of our metals. Generally, the set-back was most noticeable in 1974-75, but there has been a gradual improvement since that time. Exploration activity is on the increase and if the metal markets continue to improve, the next decade could possibly see several new gold, massive sulphide copper and porphyry copper deposits being brought into production.

In 1978, metal production represented 41 percent of the total value of minerals in British Columbia. Copper, the most important metal produced, was valued at \$431.7 million in 1978, an increase of almost \$47 million over 1977. This record value was attained even though the Granduc mine closed in mid-year and the Gibraltar mine suffered a lengthy strike.

The four largest producers of copper during 1978 (Lornex, Island Copper, Craigmont and Similkameen) accounted for almost 60 percent of the total copper production in the Province. At present about 76 percent of the copper concentrates produced are shipped to Japan. A significant development in the copper scene was the start-up of Afton's mine (late 1977) and smelter (early 1978). This operation has been designed to produce 23 million kilograms of blister copper per year.

MINERAL INDUSTRY

Principal Mines, August 1979.



LEGEND

- Mill capacity over 4500 tonnes per day
- Mill capacity under 4500 tonnes per day
- ▲ Under construction or reactivation

1. Afton (Copper), Kamloops
2. Bell (Copper), Babine Lake
3. Bethlehem (Copper), Highland Valley
4. Boss Mountain (Molybdenum), Big Timothy Mountain
5. Brenda (Copper, Molybdenum), Peachland
6. Carolin (Gold), Hope
7. Cassiar (Asbestos), Cassiar
8. Climax (Molybdenum), Alice Arm
9. Craigmont (Copper, Iron), Merritt
10. Endako (Molybdenum), Endako
11. Equity [Sam Goosly] (Copper, Gold, Silver), Houston
12. Esso Resources [Granduc] (Copper), Stewart
13. Fording (Coal), Fording River
14. Gibraltar (Copper, Molybdenum), McLeese Lake
15. Granisle (Copper), Babine Lake

16. Highland Bell (Silver, Lead, Zinc), Beaverdell
17. Highmont (Copper, Molybdenum), Highland Valley
18. Island Copper (Copper, Molybdenum), Rupert Inlet
19. Kaiser (Coal), Sparwood
20. Lornex (Copper, Molybdenum), Highland Valley
21. Lynx (Copper, Silver, Lead, Zinc), Buttle Lake
22. Northair (Lead, Zinc, Silver, Gold), Alta Lake
23. Silmonac (Silver, Lead, Zinc), Sandon
24. Similkameen (Copper), Princeton
25. Sullivan (Silver, Lead, Zinc), Kimberley
26. Tasu (Iron, Copper), Tasu
27. Utica (Silver, Gold, Lead, Zinc), Keremeos
28. Western Gypsum (Gypsum), Windermere
29. Byron Creek (Coal), Corbin

British Columbia started producing molybdenum in 1964 and by 1978 production was valued at \$167.7 million, ranking second only to copper among the metals. Two mines are producing only molybdenum, the largest one being Endako, while a number of others produce it in conjunction with copper. The Endako mine is the second largest molybdenum mine in the world.

Over the years, the minerals extracted in the Province have varied in importance. Until about 1895 placer and lode gold dominated the mining industry. After 1895, lead and zinc increased in importance to become the leading metallic minerals in terms of value and tonnage extracted, until approximately the mid 1960's when copper took the place of primary importance. The 1978 values of zinc and lead production were \$52.0 million and \$51.6 million respectively. Over 90 percent of the lead and 55 percent of the zinc produced in the Province comes from the Sullivan mine at Kimberley.

The outlook for the metals component is for a substantial increase in production in the early 1980's as mines now under development come into full production. At the present time, construction projects include: a silver-copper-gold mine near Houston (\$85 million); a molybdenum mine north of Terrace (\$135 million); a copper-molybdenum mine in the Highland Valley (\$150 million) and a nearby expansion project (\$160 million); and a gold mine near Hope (\$19 million). At least fourteen major potential metal mines have been identified and capital expenditures for mine development and expansion could exceed a billion dollars over the next few years.

Industrial Minerals

The value of industrial minerals dropped to \$59.5 million in 1978, reflecting a lengthy strike at the Cassiar Asbestos mine. Asbestos accounts for 79 percent of the total value of industrial minerals. Other significant minerals in this category are sulphur, gypsum, jade and granules.

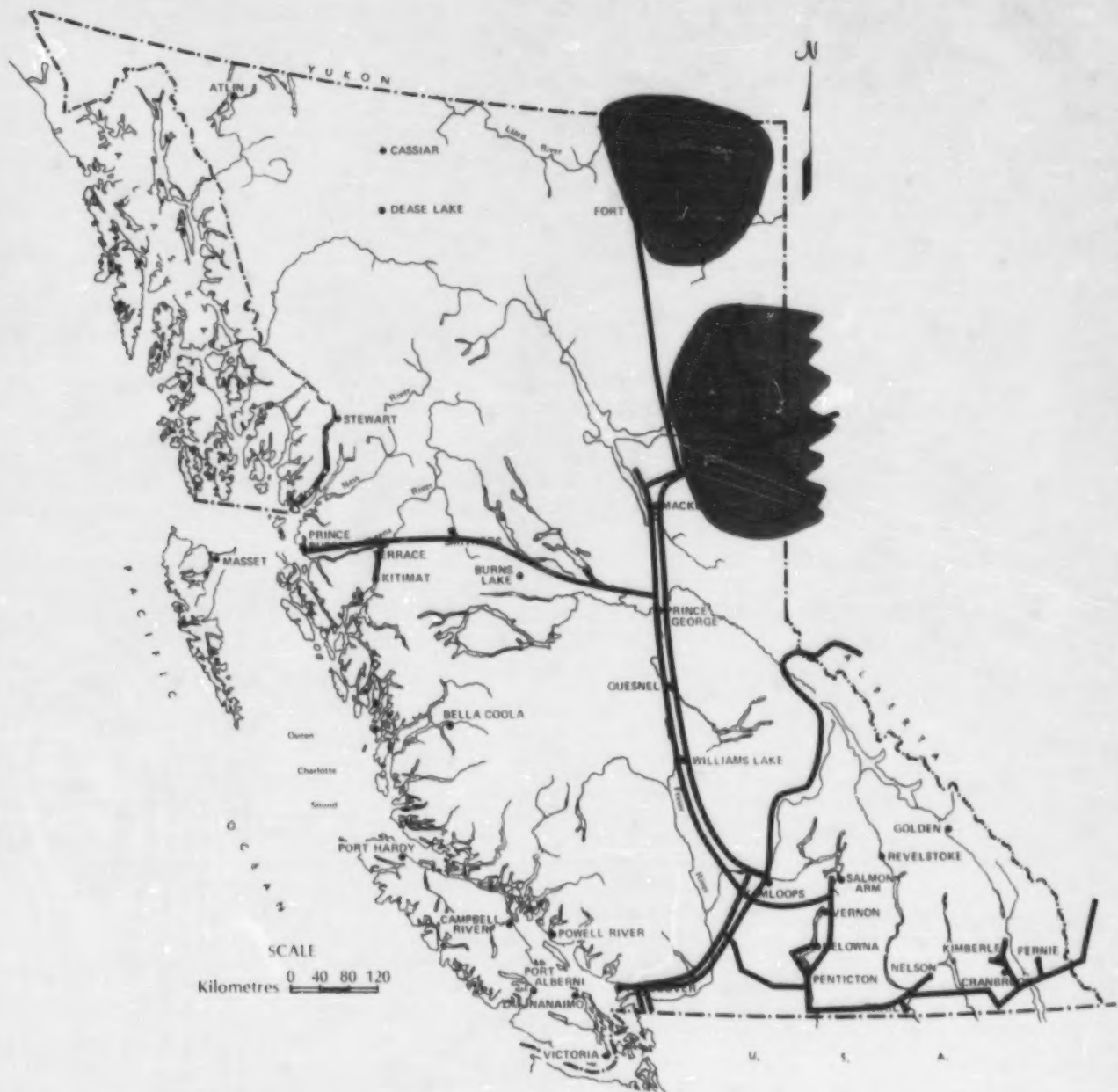
Structural Materials

The production of structural materials totalled \$142.3 million in 1978, the major components being sand and gravel (\$64.2 million) and cement (\$56.1 million). A major expansion in cement production capacity occurred in 1978 with the completion of a million tonne per year plant on Tilbury Island in the municipality of Delta. Other plants are located at Kamloops, Bamberton near Victoria and Richmond, a Vancouver suburb.

Coal

The annual volume of coal production during most of the 1950's and the 1960's was relatively constant, fluctuating in the 700,000 - 800,000 tonne range. With the construction of the Roberts Bank superport and the negotiation of long-term contracts for the sale of metallurgical coal to Japan, the output increased to a peak of 9.5 million tonnes valued at \$381.9 million (f.o.b. mine) in 1978. Considerable amounts have been expended on exploration for coal, especially in northeastern and southeastern British Columbia, and the large reserves now indicated will ensure a very prominent position for coal, particularly in this period of an "energy crisis". A number of new mines in the planning stage in the East Kootenay and Peace River districts will be coming into production in the 1980's.

PIPELINES 1979



The initial foreign contracts were for metallurgical coal destined for Japan. Markets have been expanded to include South Korea, Taiwan, Brazil, Mexico and a number of countries in Europe. Shipments of thermal coal are relatively small to date but the potential exists for significant increases. In 1978, thermal coal was exported to the U.S.A., Romania, Denmark and Belgium as well as Japan. The major portion of current production is shipped eastward to power plants in Ontario and this market is also expected to grow substantially. Power generation in British Columbia from thermal coal or waste coal from metallurgical coal mines is under active study as well. Expenditure on coal exploration increased to approximately \$19.8 million for the year in 1978. The moratorium on the issuance of new coal licences was lifted in early 1978.

Petroleum and Natural Gas

All oil and gas currently produced in the Province comes from the northeastern corner of British Columbia which, incidentally, has the thickest sedimentary section so far drilled in Western Canada. A pipeline to transport natural gas from the area to the Lower Mainland was built in 1957 and five years later an oil pipeline was constructed to bring oil from the area to the Trans Mountain pipeline at Kamloops.

The gas gathering system has gradually been extended north to beyond the Provincial boundary with the Yukon and North West Territories and south into the Grizzly Valley area south of Dawson Creek. Distribution lines now extend west to Prince Rupert and eastward through the Okanagan and Kootenay districts with further connection to the major transmission line running from Alberta through the southeastern corner of the Province. Oil gathering lines have also been built to the limits of oil production.

Crude petroleum production totalled 2,004,699 cubic metres in 1978, down 195,604 cubic metres from 1977. The natural gas delivered to pipeline totalled 8,003,029 thousand cubic metres in 1978, of which more than half was exported to the United States.

Although peak production levels of crude oil and natural gas were reached in 1970 and 1973 respectively, the recent levels of activity in the industry are indicative of the potential for increasing output, particularly in natural gas. With improved unit prices now being received by producers, bids for exploration and development rights continued to increase during 1978. The outlook for further exploration and development in the northeastern part of the Province is very encouraging. Present natural gas resources are expected to be sufficient to meet demand for the next 25 to 30 years, but oil reserves continue to be depleted with the result that British Columbia will become increasingly reliant on extra-provincial sources of oil, particularly Alberta.

By-product sulphur is becoming more important, having a value of \$5.6 million in 1978. Sulphur is obtained when sour natural gas is cleaned. In periods of low prices it has been stockpiled, but in 1979 the price was sufficiently high to permit shipments from Fort Nelson. In late 1979 the Province's third sulphur plant will come on stream at Chetwynd, substantially increasing both sulphur production and deliveries of clean natural gas to the main transmission pipeline.

MINERAL PRODUCTION OF BRITISH COLUMBIA 1977 and 1978

		1977		1978	
	<u>Units</u>	<u>Quantity</u>	<u>Value</u> \$	<u>Quantity</u>	<u>Value</u> \$
Metals					
Antimony	kg	596 207	2,519,739	459 521	2,083,895
Bismuth	kg	18 540	187,612	28 172	166,452
Cadmium	kg	320 711	1,720,051	253 803	1,186,320
Copper	kg	275 224 115	384,736,661	273 692 676	431,694,395
Gold - placer	g	46 170	289,075	36 515	295,001
Gold - lode, fine	g	5 906 336	31,301,931	6 542 332	47,951,880
Iron concentrates	t	445 317	7,362,345	615 569	11,597,462
Lead	kg	78 172 646	42,316,293	81 064 539	51,640,564
Molybdenum	kg	15 521 970	142,057,947	13 055 203	167,714,272
Silver	g	241 503 007	37,934,098	227 271 890	45,071,509
Tin	kg	187 478	1,912,300	261 863	3,675,508
Zinc	kg	103 780 228	61,301,001	95 618 111	52,048,701
Others	-	-	397,654	-	4,652,559
Sub-Totals	-	-	714,036,707	-	819,778,518
Industrial Minerals					
Asbestos	t	97 033	69,729,205	68 766	47,066,170
Diatomite	t	1 239	49,595	2 184	59,346
Fluxes	t	28 624	95,461	22 475	56,894
Granules	t	29 551	1,238,485	26 849	1,186,160
Gypsum and gypsite	t	653 126	2,357,488	733 080	3,110,695
Jade	kg	266 621	825,523	488 759	1,422,018
Sulphur	t	248 892	3,871,660	322 181	5,647,993
Others	-	-	1,017,682	-	922,085
Sub-Totals	-	-	79,185,099	-	59,471,361
Structural Materials					
Cement	t	909 522	42,705,320	1 020 065	56,140,564
Clay Products	-	-	4,909,799	-	6,282,560
Lime and limestone	t	2 231 166	5,861,614	2 512 867	7,263,312
Rubble, riprap and crushed rock	t	2 464 503	7,309,536	2 841 920	8,410,065
Sand and gravel	t	52 994 528	54,809,121	38 315 952	64,227,295
Building-stone	t	4 535	55,602	405	18,030
Sub-Totals	-	-	115 650,992	-	142,341,826
Coal					
Coal - sold and used	t	8 424 181	328,846,883	9 463 920	381,895,241
Petroleum and Natural Gas					
Crude Oil	m ³	2 200 303	132,859,085	2 004 699	145,005,524
Field condensate	m ³	24 465	1,477,248	25 386	1,836,217
Plant condensate	m ³	180 267	9,751,058	155 503	10,269,861
Sub-Totals	-	-	144,087,391	-	157,111,602
Natural gas to pipeline	10 ³ m ³	8 895 663	396,601,354	8 003 029	401,373,236
Butane	m ³	111 357	5,358,167	106 580	13,360,454
Propane	m ³	91 297	4,392,944	85,732	11,124,542
Sub-Totals	-	-	406,352,465	-	425,858,232
TOTAL PETROLEUM AND NATURAL GAS	-	-	550,439,856	-	582,969,834
GRAND TOTALS	-	-	1,788,159,537	-	1,986,456,780

Source: Ministry of Energy, Mines and Petroleum Resources.

AGRICULTURE

Agriculture in British Columbia is diverse and specialized because of the Province's physical and climatic characteristics. British Columbia's relatively mountainous terrain has caused agriculture to be scattered in pockets throughout the Province. Cropping areas are mainly limited to arable lands along river valleys with the exception of the Peace River district in the northeast which is an extension of the more prairie-type landforms common in Canada's prairie provinces.

In terms of gross cash receipts, agriculture is the third largest resource industry behind forestry and mineral production. This becomes more significant when considering that less than four percent of the Province's land area is arable or potentially arable.

Agriculture and food production has remained prominent in the Provincial economy because of advanced farming technology and the use of modern equipment. British Columbia's agricultural products are competitive in world markets because of high quality standards in production and processing as well as by the high yields per hectare which are necessary in consideration of our comparatively little agricultural land.

The most significant agricultural area is the Fraser Valley where over one-half of the Province's farm revenue is generated. Berries, vegetables, hogs, poultry, eggs and dairy products are the main commodities produced in the Fraser Valley and represent most of the Province's output of these crops. Specialty crops such as bulbs, cut flowers, ornamental shrubs, filberts and mushrooms have increased in prominence and are grown mainly in the Fraser Valley.

The southern and central interior region is the center of the Province's beef industry. Extensive upland areas provide rangeland for grazing livestock. The Okanagan Valley, prior to irrigation, was cattle rangeland and now produces over 90 percent of the tree fruit crops in this Province. The grape and wine industry is also centered in the Okanagan area.

The Peace River region in the northeast produces about 90 percent of the total grain harvested. Specialty seeds, beef and forage are also produced in this area. The Kootenay region in the southeast corner of the Province produces mainly beef, tree fruits, forage and grain. Honey is produced in all areas of the province although Vancouver Island, the Peace River district and Okanagan Valley are the major producing areas.

The Okanagan, Vancouver Island and Peace River region rank second, third and fourth respectively in terms of Provincial farm cash receipts generated. Vancouver Island agriculture is located mostly along the southern portion of the eastern edge of the island, including the Saanich Peninsula near Victoria. Dairy products, greenhouse crops, vegetables and berries are the primary agricultural commodities produced on Vancouver Island.

British Columbia has about 3.6 million hectares (9.0 million acres) of arable or potentially arable land which represents about four percent of the total Provincial land area. There are an estimated 8.9 million hectares

MAIN FARMING AREAS



LEGEND

- Main Farming Areas
- Main Range Areas

of open and forested Crown rangeland (22.0 million acres) on which British Columbia ranchers graze their livestock. The area in farms increased to 2.3 million hectares according to 1976 census figures, a four percent increase since 1971. The total number of farms also increased by more than 18 percent to 13,033 during the same period. Farm capital assets are now valued at over \$4 billion.

Farm cash receipts during 1978 totalled some \$582 million. Dairying contributed 23 percent, poultry and eggs - 17 percent, cattle and calves - 15 percent, fruits - 12 percent, special crops including horticulture and nursery crops - 9.5 percent, vegetables 7 percent, grains and oilseeds - 4.5 percent, hogs - 3.5 percent, other 8.5 percent.

The United States, the United Kingdom and Japan are the major buyers of British Columbia agricultural products. Tree fruits are the largest single commodity group exported.

Secondary agriculture has a significant impact on the economy. Yearly food and beverage manufacturing sales (including fish products) are estimated at \$1.7 billion; retail food sales, \$2.2 billion; and hotel/restaurant food sales, \$910 million. Total employment in all aspects of the British Columbia food and agriculture industry from farm supply to retail outlets is estimated at 62,000 persons.

FISHING

British Columbia's commercial fishing fleet in 1978 was valued at \$368.5 million, and numbered 7,264 vessels compared with 6,659 vessels valued at \$337.5 million in 1977. There were approximately 12,000 fishermen and 4,000 to 5,000 shoreworkers employed in the industry. During 1978 ninety-nine companies with 115 plants processed fish. The major volume of fishery products was centralized in Prince Rupert and the Lower Mainland although many small processing facilities are located throughout British Columbia. A total of 345 processing and 653 buyers' licences were outstanding in 1978.

The total value to the fishermen of all fishery landings in 1978 is estimated at \$250.6 million, with a wholesale market value of \$517.5 million. Salmon landings of 68,000 tonnes had a wholesale value of \$304 million, or 59 percent of the total fishery wholesale marketed value. Most salmon were sold canned or frozen. Herring forms the second most valuable fishery, with a wholesale value of \$155 million. This represented a 72 percent increase over the 1977 value. Herring roe, which is exported to Japan, accounted for 88 percent of the wholesale value of herring caught in the Province. Salmon, herring and halibut accounted for 92 percent of the total wholesale value of British Columbia fishery landings while groundfish and shellfish represented 4 and 2 percent respectively.

The marine industry is showing signs of diversification with the harvesting of kelp and other seaweeds. Kelp resources totalling 335,000 harvestable tonnes have been located in several coastal regions. Research to culture seaweeds for human consumption and industrial use is being undertaken by the British Columbia Marine Resources Branch.

The Federal-Provincial Salmonid Enhancement program cost-sharing agreement was signed in 1978. The program is expected to double British Columbia's salmon stocks in about 20 years through the implementation of artificial enhancement techniques such as stream rehabilitation. Canada will contribute \$150 million and British Columbia \$7.5 million starting in 1979/80 to undertake Phase I of the program.

On January 1, 1977, Canada extended its jurisdiction to 200 miles from its shoreline. The Provincial and Federal governments have begun cost-shared programs to conduct exploratory fishing for unexploited and underexploited fishery stocks within the 200 mile economic coastal zone.

The outlook for the development of marine fisheries in British Columbia is very positive.

FISHING INDUSTRY



MAIN FISH PROCESSING PLANTS

1. British Columbia Packers Ltd., Steveston
2. British Columbia Packers Ltd., Prince Rupert
3. British Columbia Packers Ltd., Port Edward
4. Canadian Fishing Company, Vancouver
5. Canadian Fishing Company, Prince Rupert
6. Norpac Fisheries Ltd., Vancouver
7. Prince Rupert Fisherman's Co-op, Prince Rupert
8. Central Native Fisherman's Co-op, Ucluelet
9. Trans-Pacific Fish Ltd., Ucluelet
10. Cassiar Packing Co., Delta
11. Pacific North Coast Native Co-op, Port Simpson

WHOLESALE MARKET VALUE (\$'000)						
Year	Salmon	Halibut	Herring	Other	Total	Landed Value
1976	187,045	18,378	65,100	27,098	297,621	141,851
1977	228,835	12,685	97,142	32,123	371,785	167,905
1978	304,019	19,661	155,031	38,790	517,501	250,565

WATER RESOURCES AND ELECTRIC POWER

Water Resources

Approximately one-third of Canada's water flows in British Columbia, contributed by an estimated long-term average annual British Columbia runoff of 100 million hectare-metres. The Province's water resources, in addition to providing necessary electric power for the industrial development of British Columbia, have contributed in many other ways to the economy. These include providing sufficient water supply for domestic use, transportation, recreation, fisheries, irrigation, and meeting the requirements of many industries such as the pulp and paper industry for large volumes of water.

The agriculture industry is the greatest consumptive user of water in the Province. Some 160,000 hectares (400,000 acres) of land are irrigated with licensed diversion of 120,000 hectare-metres. The best soils for agriculture and easiest sites for settlement are located on the narrow flood-plains of British Columbia's fast moving rivers. This has led to the most extensive dyking system in Canada, protecting some 95,000 hectares (230,000 acres) of land from flooding.

Flood control and pollution control are the responsibility of the Ministry of Environment. The Pollution Control Act was enacted in 1967 and is administered by the Pollution Control Branch which examines all existing and proposed means for the disposal of sewage and waste materials to ensure a continued volume of pure water in all domestic, recreational and industrial activities in the Province.

Electric Power

The total generating capacity in British Columbia, as of March 31, 1979, was 9,577 megawatts (MW)¹. Of this 7,618 MW was owned by three utilities - British Columbia Hydro and Power Authority, West Kootenay Power and Light, and the City of Nelson, while the remaining 1,959 MW was owned by private companies, the largest of which were Alcan Canada Products Ltd., Cominco Ltd. and MacMillan Bloedel Ltd. The following table summarizes the electric production capacity of the utilities and industry in this Province.

INSTALLED ELECTRIC GENERATING CAPACITY IN BRITISH COLUMBIA (Megawatts)

<u>Utilities:</u>		
British Columbia Hydro	7,567.5	
City of Nelson	8.7	
West Kootenay Power	42.0	
Sub-total		7,618.2
<u>Mining Companies:</u>		
Alcan	817.8	
Cominco	611.7	
Others	63.2	
Sub-total		1,492.7
<u>Forest Products Companies:</u>		
MacMillan Bloedel	194.3	
Others	258.8	
Sub-total		453.1
<u>General Industrial:</u>		13.0
TOTAL		9,577.0

¹ One megawatt (MW) equals one thousand kilowatts (kW).

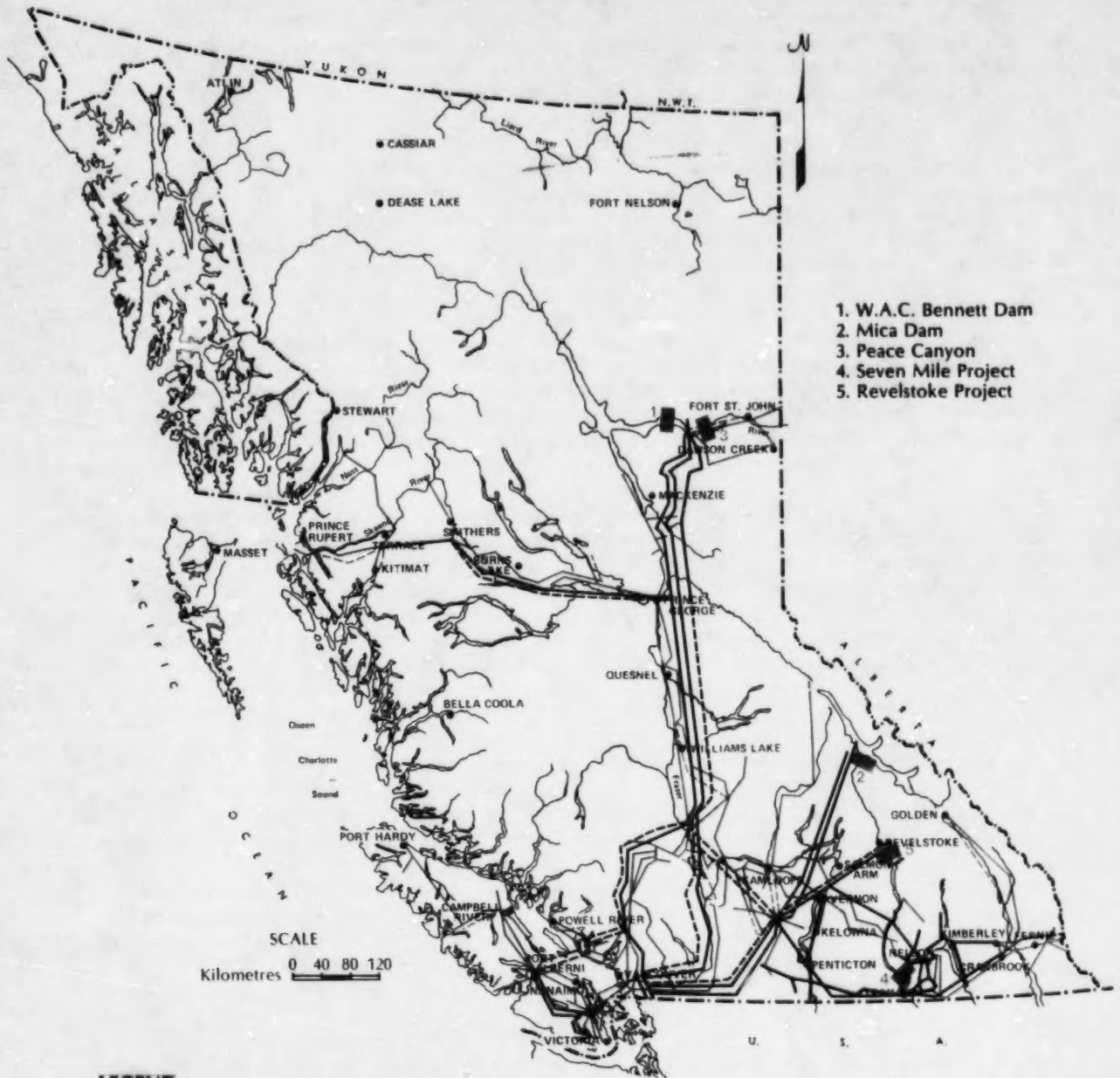
Of the 9,577 MW of installed electrical generating capacity, 7,175 MW, or approximately 75 percent, is in hydroelectric plants. The fortunate combination of numerous rivers and mountainous terrain has endowed British Columbia with an immense water power potential. Although much development has already taken place, the balance available is relatively undiminished, and it is evident that hydropower will continue to play an important part in the future economic growth of the Province. According to a 1975 inventory of principal undeveloped hydropower sites, British Columbia had an estimated potential generating capacity of 20,960 MW of firm power. This estimate of gross available power is very likely to be revised upward as the increasing prices of fossil fuels make the development of smaller-scale hydroelectric plants economically more attractive. Not all of the potential will be developed. Some of the technically promising sites are in regions of difficult access, while others could create serious environmental problems.

The British Columbia Hydro and Power Authority continues to expand its generating and transmission network. Construction is winding up on the Seven Mile dam on the Pend-d'Oreille River near Trail and on the Peace Canyon Project at Hudson's Hope. Both are scheduled for completion in 1980 and have total ultimate capacities of 810 MW and 700 MW respectively. The Revelstoke Dam Project, now under construction and scheduled for completion in 1984, will have an ultimate generating capacity of 2,700 MW.

British Columbia Hydro is studying the Hat Creek coal deposits to determine the feasibility of their use for thermal generation of electricity. The generating plant at Hat Creek would have an ultimate capacity of 4,800 MW, and an economic life of 35 years. However, it is believed that the project will not commence until technological developments - primarily pressurized fluidized bed combustion - are proven in commercial applications so that air pollution can be limited to acceptable levels. Preparatory environmental studies of the Site C Project on the Peace River have been commissioned for a possible water licence application. Studies of the diversion of the Kootenay River to the Columbia River at Canal Flats are in progress and preliminary site investigations continue on major northern rivers including the Liard, Stikine and Iskut.

Extensions to the Province's 500,000 volt transmission grid include a recently completed line between Terrace and Prince George; a line linking Nicola to Cranbrook; a new mid-island line linking Vancouver Island with the Mainland near Powell River by 1983; and a possible link to Alberta.

ELECTRIC TRANSMISSION SYSTEM



1. W.A.C. Bennett Dam
2. Mica Dam
3. Peace Canyon
4. Seven Mile Project
5. Revelstoke Project

LEGEND

B.C. Hydro and Power Authority

- Transmission Lines 60-360 KV (existing and under construction)
- Transmission Lines 500 KV (existing and under construction)

- - - Transmission Lines 60-360 KV (planned)
- · · Transmission Lines 500 KV (planned)

West Kootenay Power and Cominco Ltd.

- Major Transmission Lines

RECREATION

Recreational activities are abundant in British Columbia which is renowned for its spectacular scenery, numerous lakes, coastal waterways and plentiful stocks of fish and game. Some of the more popular recreational activities are camping, boating, fishing, hunting and skiing.

The Province had 351 parks, 25 recreational areas and one wilderness conservancy as of April 1979, with a total area of 4.5 million hectares (11.2 million acres), plus five national parks (Glacier, Yoho, Pacific Rim, Kootenay and Mount Revelstoke), with a total area of about 0.5 million hectares (1.2 million acres). An estimated 11.6 million visits were made to Provincial parks in 1978, of which just under twenty percent were overnight visitors.

Provincial parks range from wilderness areas, where natural conditions are preserved as much as possible, to main highway camping and picnic sites. Five of the larger parks, offering a variety of natural experiences and limited overnight facilities are Tweedsmuir, Wells Gray, Strathcona, Mount Robson and Garibaldi. Others offer unique features such as the ancient rock carvings in Petroglyph Park, the nature houses at Manning, and the chain of lakes for canoeing enthusiasts in Bowron Lake Park.

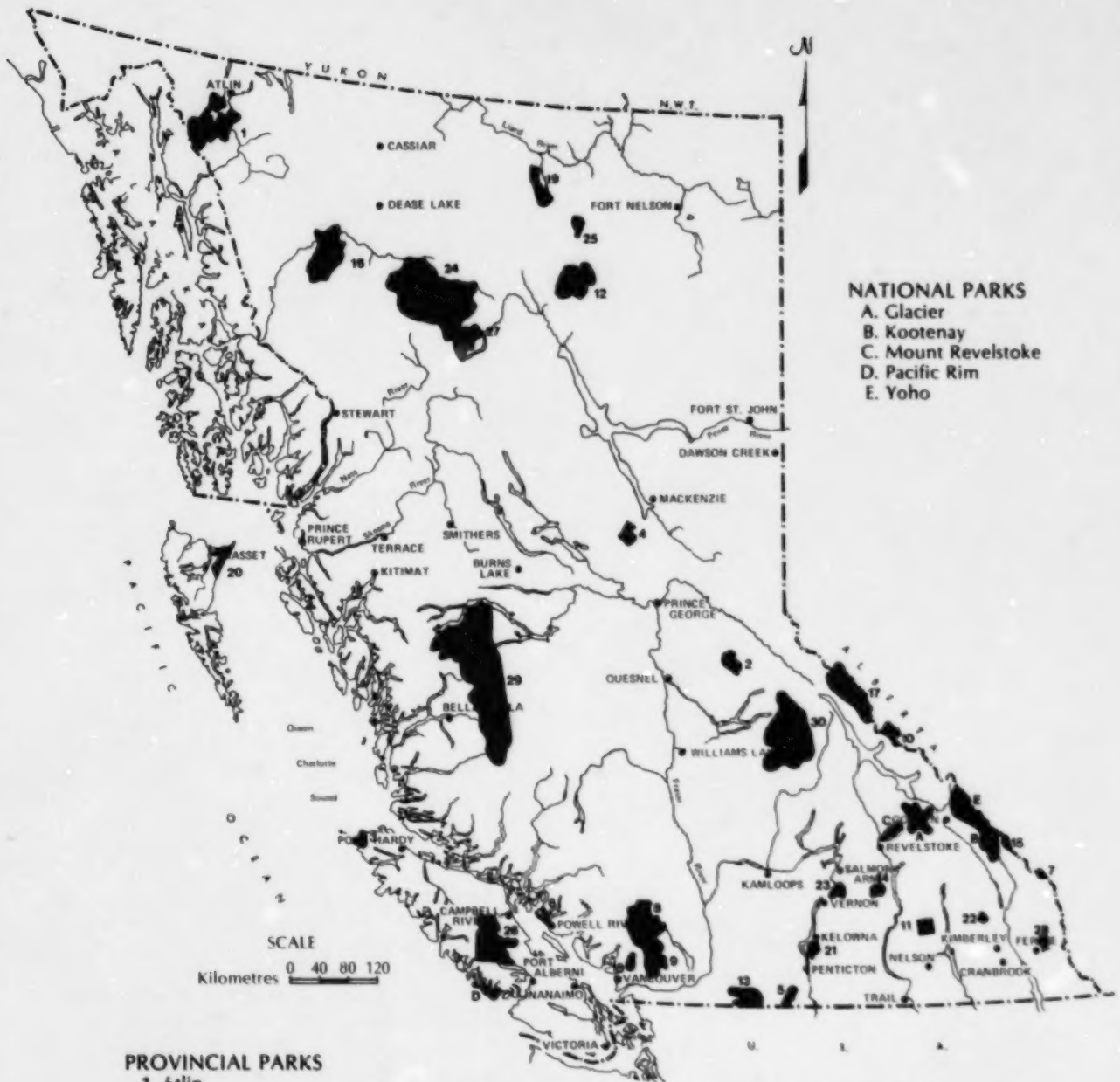
There are also marine parks which provide facilities for the rapidly increasing number of boaters from British Columbia and the United States. Water sports of all kinds, including cruising, sailing, skindiving, fishing and water skiing, are growing in popularity at a tremendous rate. In addition to twenty-four Provincial marine parks in the lower and mid-coast areas an increasing number of marinas and related service facilities are available. Interior fresh water boating has also become increasingly popular resulting in the development of marine sites on the Shuswap and Kootenay Lake water systems.

In British Columbia excellent year-round salt and fresh water fishing is available. Spring and coho salmon are the chief salt water sports fish and are found in all coastal waters. The Kamloops or rainbow trout is the most abundant fresh water sports fish and can be found throughout the Interior.

British Columbia provides hunters with a wide variety of quarry ranging from uplands birds to big game. Each year there are approximately 145,000 resident and 5,000 non-resident hunters. The most widely hunted upland game birds are grouse and pheasant, while ducks are the most popular waterfowl species. Larger game animals hunted include moose and deer.

The growing popularity of skiing in British Columbia is reflected by the increased development of alpine areas, the major regions being the Lower Mainland, Vancouver Island, southern Interior and Kootenays. Located adjacent to Vancouver are Grouse Mountain, Mount Seymour and Cypress Bowl. Approximately 95 kilometres (60 miles) north of Vancouver is the famous Whistler Mountain ski area, which is currently undergoing a major construction effort which will raise the facilities to world-class standards. Virtually every community in the Province boasts its own ski hill. Sites that are popular tourist destinations are found in the Okanagan Valley, the Kootenays and at Kamloops.

MAJOR PARKS



PROVINCIAL PARKS

1. Atlin
2. Bowron Lake
3. Cape Scott
4. Carp Lake
5. Cathedral
6. Desolation Sound Marine Park
7. Elk Lakes
8. Garibaldi
9. Golden Ears
10. Hamber

11. Kokanee Glacier
12. Kwadacha
13. Manning
14. Monashee
15. Mount Assiniboine
16. Mount Edziza
17. Mount Robson
18. Mount Seymour
19. Muncho Lake
20. Naikoon

21. Okanagan Mountain
22. St. Mary's Alpine
23. Silver Star
24. Spatsizi Plateau
25. Stone Mountain
26. Strathcona
27. Tatlatui
28. Top of the World Park
29. Tweedmuir
30. Wells Gray

TRAVEL INDUSTRY

Tourism continues to be one of British Columbia's most dynamic industries as evidenced by the trend of tourist expenditures since the 1960's. Tourist revenue in 1961 was \$115 million, while in 1978 an estimated \$1.55 billion was spent. Tourism is British Columbia's third largest industry, behind forestry and mining, accounting for approximately 5.5 percent of Gross Provincial Product. Employment in tourist-related industries in British Columbia is approximately 60,000 or 6 percent of the labour force. The approximate breakdown of tourist spending, according to recent studies is as follows: 30 percent for food; 25 percent for travel; 20 percent for lodging; 17 percent for shopping and 8 percent for recreation, entertainment and miscellaneous expenditures. Each visitor spends about \$30 per day on goods and services.

Approximately 10,000 business enterprises, particularly those engaged in the service and retail trades, depend heavily on travel industry revenue. Resorts, fishing and hunting camps, dude ranches and guide services are entirely dependent on tourism.

Tourism British Columbia reported that 1,965 tourist establishments providing 71,534 accommodation units were registered with its office in 1979. Mobile tourist accommodations have become an important alternative to hotels and motels in recent years such that approximately one in every four motoring parties arriving in the Province is travelling in a recreational vehicle. Parks Branch statistics show that in 1978 15 percent of the overnight visitors to provincial parks stayed in motor homes, 28 percent in camper vehicles, 20 percent in full trailer units, 11 percent in tent trailers and the remaining 26 percent in tents.

Conventions represent an integral part of the travel industry. Business travel is responsible for more than 10 percent of all travel to and within British Columbia. In 1978, conventions brought an estimated total revenue of \$60 million to the Province. More conventions are held in the off-season months than during the spring and summer months. The major convention centres are Vancouver and Victoria.

The rapid growth of the travel industry can largely be attributed to more leisure time and an increase in motor vehicle travel due to a vastly improved and extended highway network. Increased winter travel has also occurred with increases of up to 30 percent in some areas due to the growth of the ski industry.

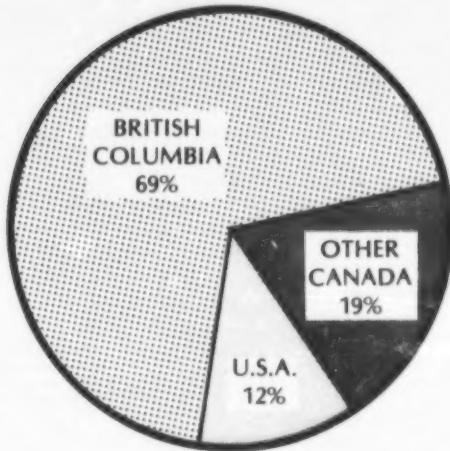
Boating is also a favourite form of recreational activity. Because of its ideal boating environment, British Columbia has developed into one of North America's leading centres for recreational boating. In 1978, 17,241 cabin cruisers and sailing yachts were cleared by Customs for entry into British Columbia waters.

Vancouver, an international sea port with a metropolitan population of over 1.1 million people, each year attracts a large number of visitors to southwestern British Columbia. More than 3.7 million persons visited or toured the area in 1978 because of its natural scenic attractions such as Stanley Park and the Capilano Canyon, its proximity to outstanding year-round recreational areas, and its vibrant and varied night life in places such as Gastown. Tourism in southwestern British Columbia in 1978 generated \$510 million in revenues.

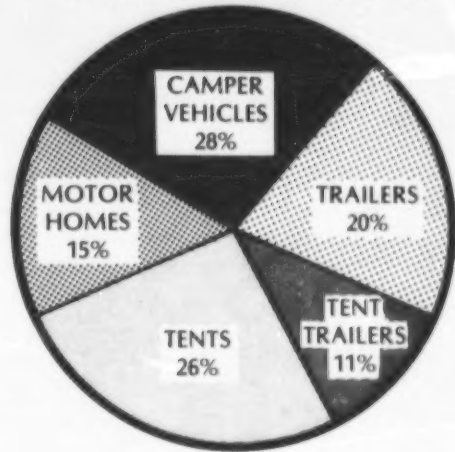
TRAVEL INDUSTRY

(Visitors to Provincial Parks)

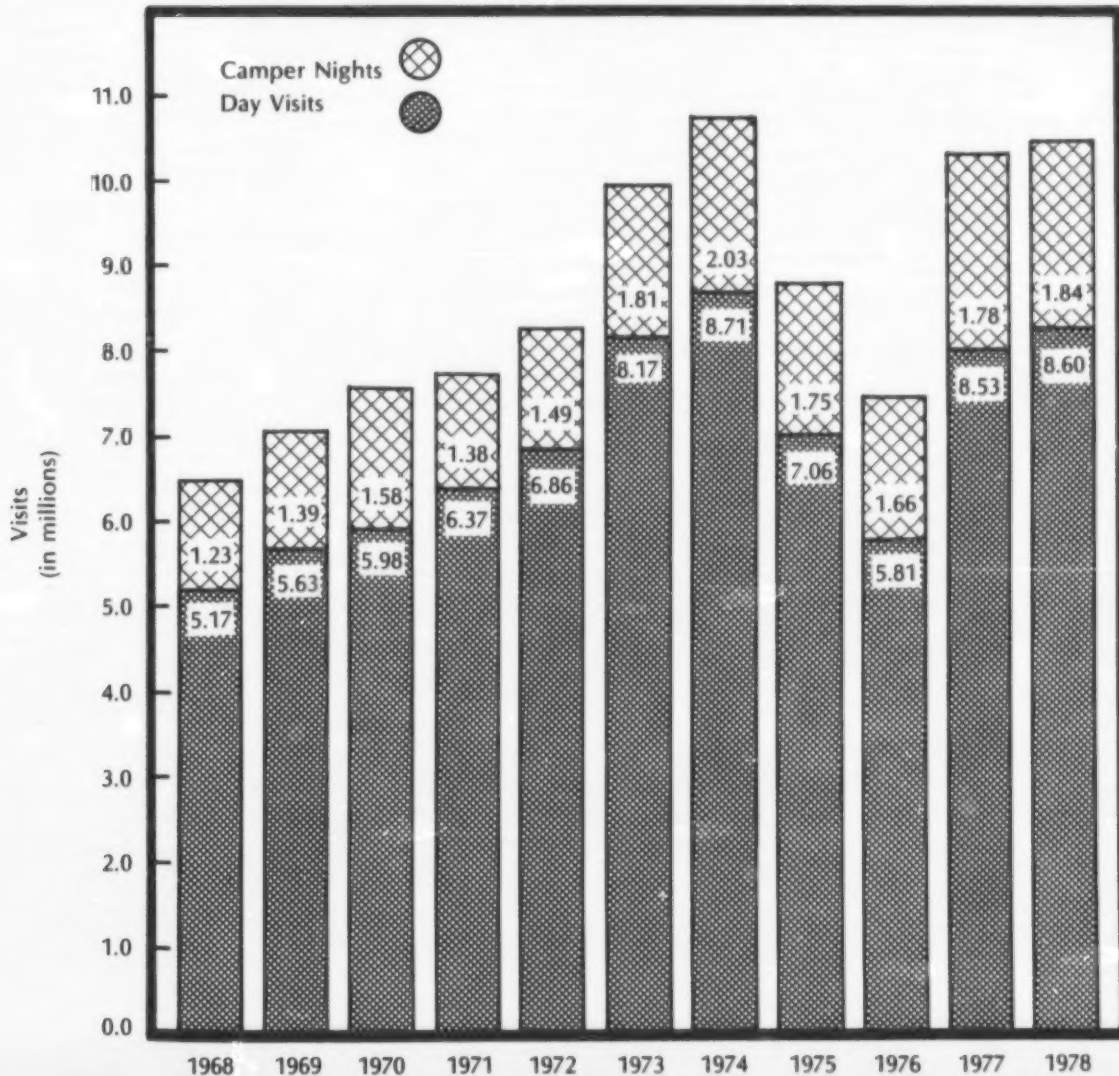
ORIGIN OF CAMPERS, 1978



TYPE OF ACCOMMODATION, 1978



VISITORS TO PROVINCIAL PARKS



In 1978 Vancouver Island received \$279 million in revenues from tourism. More than 2.0 million persons visited or toured the island. Victoria, the capital city of British Columbia on the southern tip of Vancouver Island, is known for its mild climate, fine gardens (Butchart's Gardens is world famous), Parliament Buildings, Provincial Museum and Archives and "Old English" atmosphere.

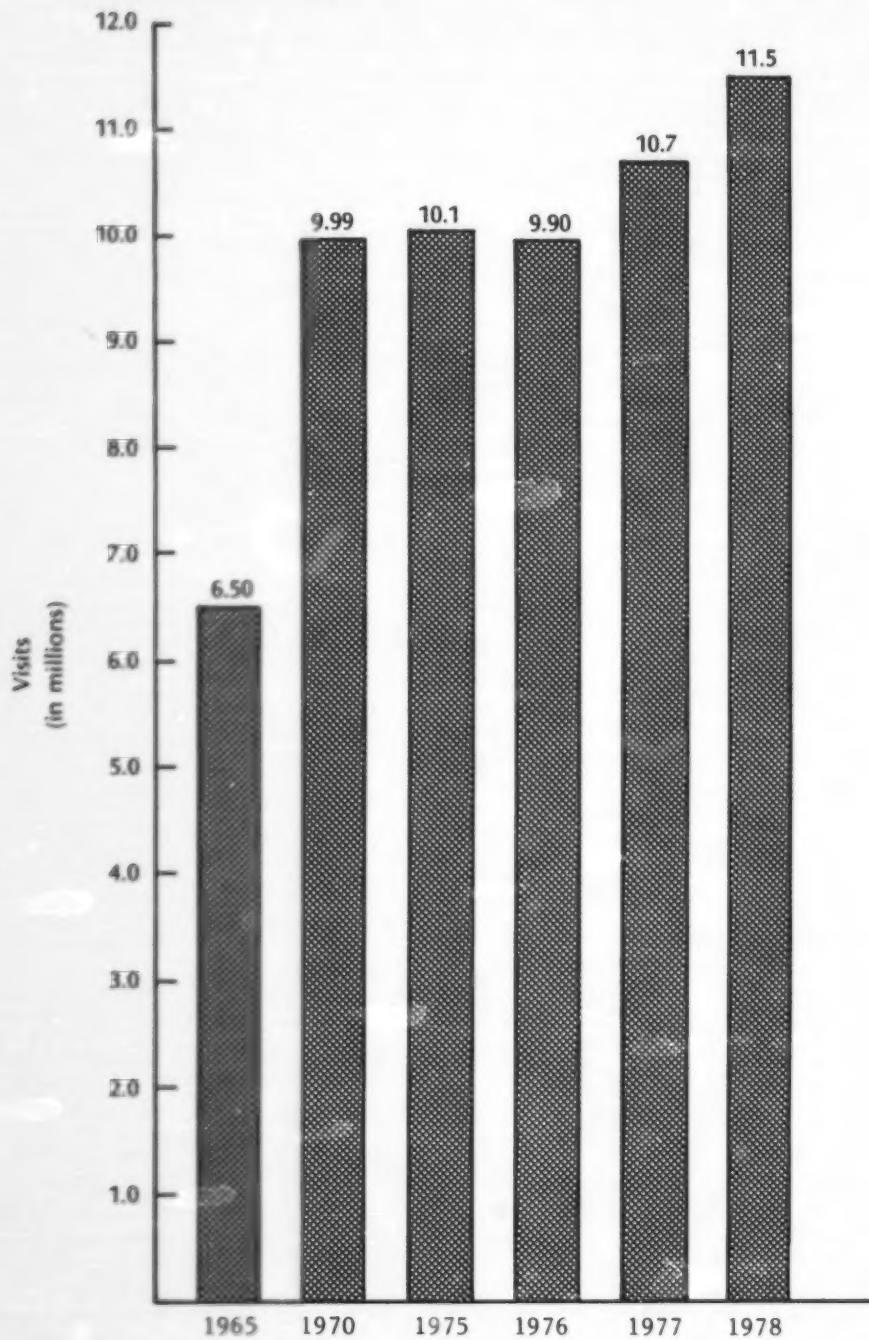
Tourism in the Okanagan region in 1978 generated \$230 million in revenues. More than 1.7 million persons visited or toured the area. The Okanagan is renowned for both summer and winter recreational activities. Vernon, Penticton and Kelowna are the leading tourist centres. Tourism in the Kootenays generated \$170 million in revenues in 1978 when more than 1.2 million persons visited or toured the region. The Kootenays are known for winter sports, hot springs, excellent fishing, beautiful mountain scenery and Fort Steel Historic Park.

The Thompson-Shuswap region received \$186 million in revenues from tourism in 1978. The region's numerous lakes, scenic attractions and recreational facilities attracted 1.3 million visitors. The Cariboo-Chilcotin region attracted 345,000 visitors in 1978 and generated \$46 million in revenues from hunting, fishing, dude ranches and other activities.

The Yellowhead-North region attracted 800,000 visitors in 1978 who spent \$108 million. The most northerly region of the Province, the Peace River-Liard, attracted more than 120,000 visitors to scenic and recreational attractions such as the W.A.C. Bennett Dam, Mile '0' of the Alaska Highway at Dawson Creek and wilderness lakes. In 1978, \$23 million in revenues were generated from tourism.

People travel to and within British Columbia for its scenic attractions, recreational activities and many interesting feature events. Annual events such as the Pacific National Exhibition in Vancouver, the Abbotsford International Air Show, the Nanaimo Bath Tub Race and the Vancouver Sea Festival, attract thousands of visitors and residents each year. Other major annual events include the Logger Sports series held in an increasing number of communities each year, the Williams Lake Stampede, the Swiftsure Lightship Classic yacht race in Victoria, the Kelowna International Regatta, the Nelson Mid-Summer Curling Bonspiel, and the Gold Panning Championship in Taylor. Winter attractions include the Vernon Winter Carnival and the Prince George Winter Mardi Gras. Annual festivals such as the Penticton Peach Festival, the Kimberley Bavarian Festival, the Kamloops Spoolmak Days, and the Cranbrook Sam Steele Days also attract visitors.

NUMBER OF TRIPS TO BRITISH COLUMBIA



Estimated totals. Day Trips are not included

MANUFACTURING

The value of shipments by British Columbia factories in 1978 was estimated at \$12.2 billion, 21.0 percent greater than in 1977. Manufacturing employment in 1978 was approximately 156,000, comprising approximately 14.4 percent of total employment in British Columbia.

A 1974 survey by Statistics Canada indicated approximately 43 percent by value of the Province's factory shipments were destined for British Columbia points, 42 percent were exported to foreign markets, and 15 percent were shipped to other regions of Canada. It was estimated that for every dollar of British Columbia manufactured goods shipped to other parts of Canada, \$2.36 worth of products were received from Canadian factories located outside the Province. The exchange with Ontario was 5:1 in Ontario's favour.

The Province's manufacturing industry has largely developed on a resource base: namely forest products, refined non-ferrous metals, fish products and processed agricultural products. In recent years, petroleum refining, chemical manufacture (fertilizers) and to a lesser degree, manufacturing of coastal vessels, fish boats, commercial trucks and trailers, sawmill equipment, pulp and paper machinery, mining machinery, electrical products and metal fabrication have grown in importance along with a plethora of smaller industries.

The wood product and pulp and paper industries still account for over 50 percent of the value of Provincial factory shipments. This domination is expected to continue in the near future although a greater degree of processing of resource products and an expansion in higher technology products such as electrical equipment, industrial equipment, chemicals and plastics is expected to develop. An examination of industrial expansion in recent years indicates that considerable diversity is already evident. Plants making window shades, wire products, insulation, commercial and recreation boats, furniture, pollution control systems, cabinets, steel fireplaces, stoves and furnaces, decorative plastics, winches, plastic pipe, aircraft, process control equipment and deep-sea submersibles are just a few examples of new factory capacity built in the Province in recent years.

Investment in manufacturing in 1978 was estimated at \$1,040 million, a gain of 4.0 percent over 1977. This increase occurred mainly in the machinery and equipment industries. It has become clear that British Columbia's natural resources are no longer in unlimited supply. For this reason, in the past few years and in the future more emphasis has been and will be placed on broadening and diversifying the Province's economic base by encouraging more secondary manufacturing.

SELLING VALUE OF FACTORY SHIPMENTS BY MAJOR MANUFACTURING INDUSTRIES,
1968, 1973, 1977 and 1978

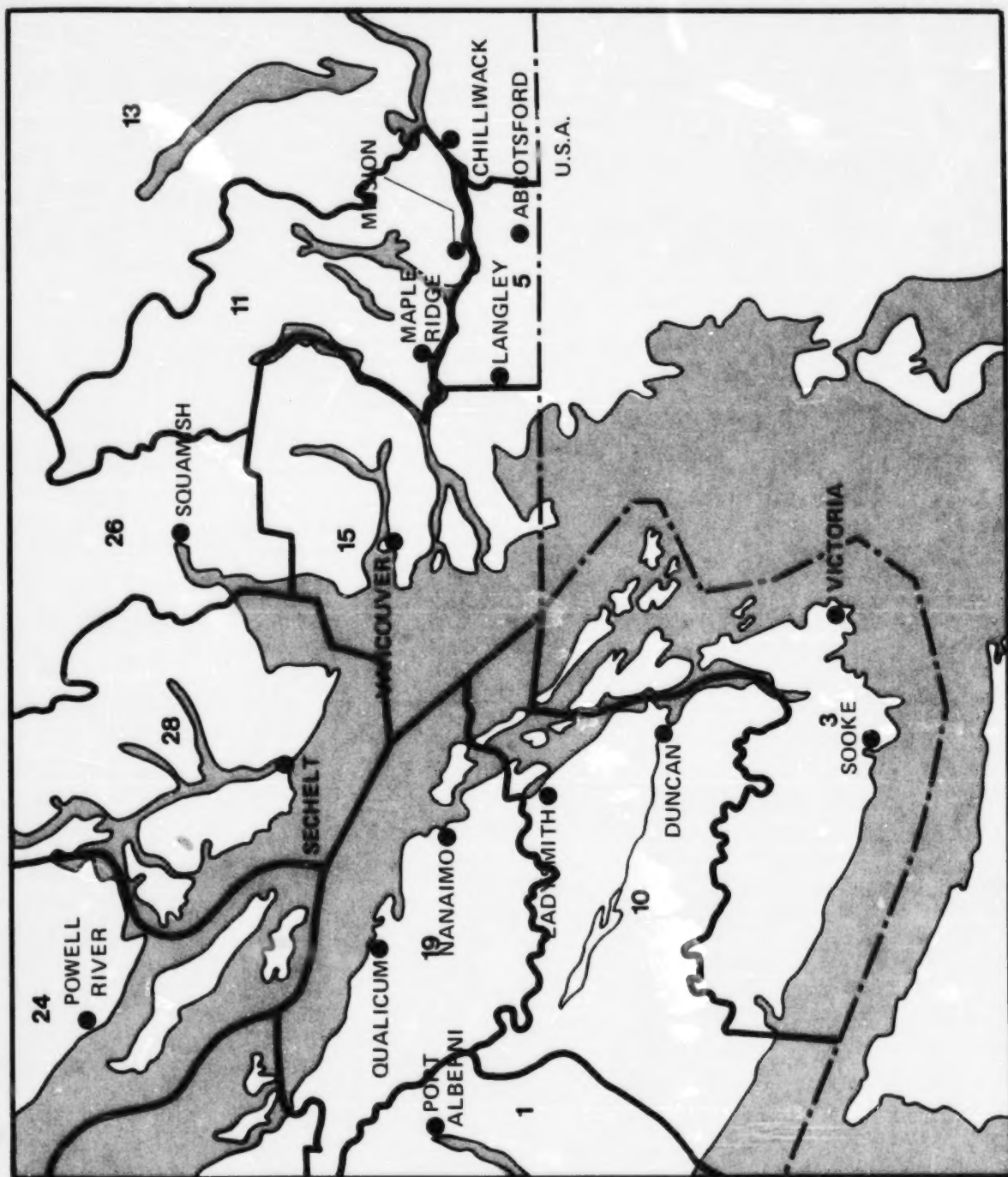
Industry	1968		1973		1977		1978 ¹		Percent Average Annual Compound Rate of Growth 1968 to 1978
	Value (Millions) (\$)	Percent of Total	Value (Millions) (\$)	Percent of Total	Value (Millions) (\$)	Percent of Total	Value (Millions) (\$)	Percent of Total	
Wood manufacture (lumber and plywood, sash & door, caskets, cooperative, preservation)	1,108.5	31.2	2,287.8	35.8	3,261.0	32.4	4,123.0	33.8	14.0
Paper and allied (pulp, newsprint, paper, asphalt, roofing, paperboard)	615.5	17.3	1,068.5	16.7	1,790.0	17.8	2,058.0	16.9	12.8
Food and beverage	605.2	17.0	996.7	15.6	1,520.0	15.1	1,809.0	14.8	11.5
Petroleum products (gasoline, fuel and greases)	165.0	4.6	275.6	4.3	749.0	7.4	910.0	7.5	18.6
Metal-fabricating (boiler and plate, structural wire, hardware, heating equipment, machine-shops)	173.9	4.9	304.0	4.8	442.0	4.4	504.0	4.1	11.2
Primary metal (iron and steel, pipe, smelting and refining)	231.2	6.5	272.8	4.3	530.0	5.3	643.0	5.3	10.8
Transportation equipment (truck body and trailer, shipbuilding, aircraft parts, railroad rolling-stock)	116.6	3.3	288.6	4.5	407.0	4.0	602.0	4.9	17.8
Chemicals (fertilizers, plastics and resins, paint and varnish, industrial explosives)	110.0	3.3	148.0	2.3	284.0	2.8	301.0	2.5	9.8
Nonmetallic minerals (cement, lime, gypsum, asbestos, glass and clay products)	78.0	2.2	153.5	2.4	220.0	2.2	253.0	2.1	12.4
Printing and publishing	94.2	2.7	159.8	2.5	249.0	2.5	262.0	2.1	10.8
Machinery (except electric)	62.6	1.8	152.7	2.4	219.0	2.2	292.0	2.4	16.6
Electric products	56.9	1.7	87.6	1.4	107.0	1.1	113.0	0.9	6.7
Clothing and textiles	38.6	1.1	74.8	1.2	93.0	0.9	105.0	0.9	10.4
Furniture and fixtures (household and office)	36.4	1.0	48.5	0.8	60.0	0.6	70.0	0.6	13.2
All other	47.8	1.4	75.1	1.0	127.0	1.3	141.0	1.2	11.4
TOTALS ²	3,550.4	100.0	6,394.1	100.0	10,058.0	100.0	12,186.0	100.0	13.1

¹ Preliminary (subject to revision). SOURCE: Statistics Canada Catalogue 31-001.

² May not add due to rounding

CENSUS DIVISIONS





The location of resources, centres of population and transportation factors have historically determined regional distribution in manufacturing. The greater Vancouver-New Westminster area has developed as the major manufacturing center with Vancouver Island ranking next in importance (pulp mills, sawmills, etc.). The Prince Rupert-Kitimat area has forest products, fish processing and aluminum refining industries. Food processing, forest products, trucks, mobile homes and recreational vehicles are the principal manufacturing industries in the Okanagan. The Kootenay centre of Trail is the location of important lead and zinc smelters while both Trail and Kimberley contain fertilizer plants. Most other regions of the Province are dominated by forest products manufacturing.

GEOGRAPHICAL DISTRIBUTION OF MANUFACTURING IN BRITISH COLUMBIA, 1975¹

<u>Division</u>	<u>Number of Establish- ments</u>	<u>Number of Employees</u>	<u>Salaries and Wages</u>	<u>Value of Shipments</u>
Alberni-Clayoquot & Mount Waddington	39	4,384	54,485	240,319
Bulkley-Nechako	51	1,892	26,036	86,961
Capital	207	5,510	70,750	244,570
Cariboo	55	3,901	51,864	204,149
Central Fraser Valley	105	2,301	27,350	142,972
Central Kootenay	48	1,941	27,059	114,751
Central Okanagan	80	2,519	30,369	175,073
Columbia-Shuswap	39	1,565	22,028	69,027
Comox-Strathcona	48	2,638	37,690	199,024
Cowichan Valley	50	3,131	44,201	232,220
Dewdney-Alouette	53	1,725	21,876	77,589
East Kootenay	51	1,465	19,750	95,723
Fraser-Fort George	82	5,679	81,209	423,556
Greater Vancouver	1,752	64,886	811,326	3,529,535
Kitimat-Stikine	24	4,107	65,749	251,824
Kootenay Boundary	28	5,016	65,785	145,695
Nanaimo	49	2,042	25,044	165,708
North Okanagan	73	2,035	27,505	104,716
Ocean Falls	5	508	7,194	25,529
Okanagan-Similkameen	70	1,600	17,942	73,710
Peace River-Liard	34	923	12,778	78,517
Powell River, Fraser-Cheam and Sunshine Coast	67	4,115	56,001	239,893
Skeena-Queen Charlotte	26	2,118	30,340	151,173
Squamish-Lillooet	17	845	10,300	49,413
Thompson-Nicola	78	2,841	40,532	204,816
Head offices and sales offices	-	7,451	118,969	-
TOTALS ²	3,131	137,138	1,804,129	7,326,464

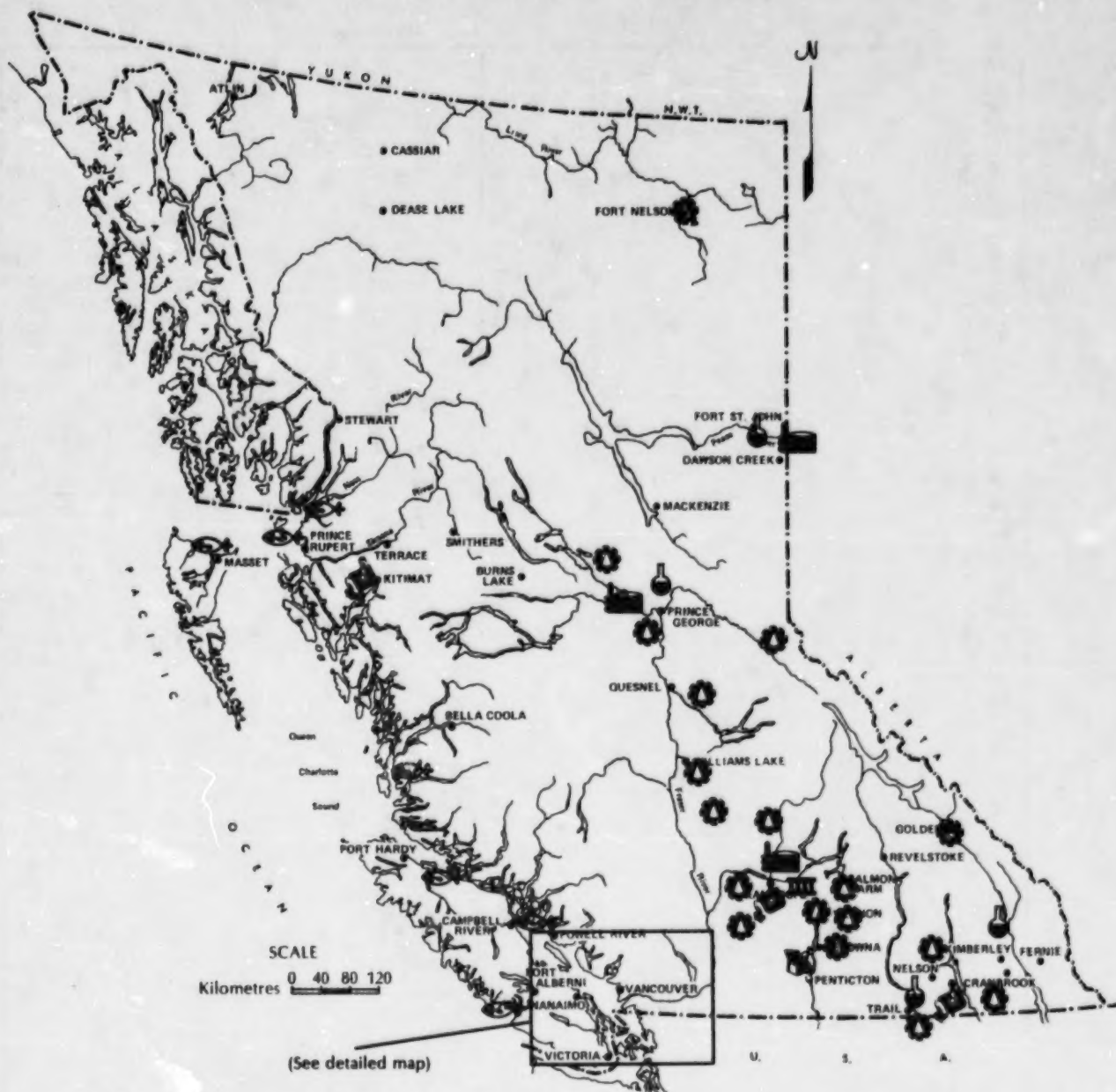
¹ Latest available.

² May not add due to rounding.

SOURCE: Statistics Canada, Catalogue 31-209.

MAJOR RESOURCE-BASED MANUFACTURING INDUSTRIES

(Exclusive of Pulp and Paper Mills and Sawmills)



LEGEND

- Fish Products
- Fruit and Vegetable Canning and Preserving
- Veneer or Plywood
- Smelters

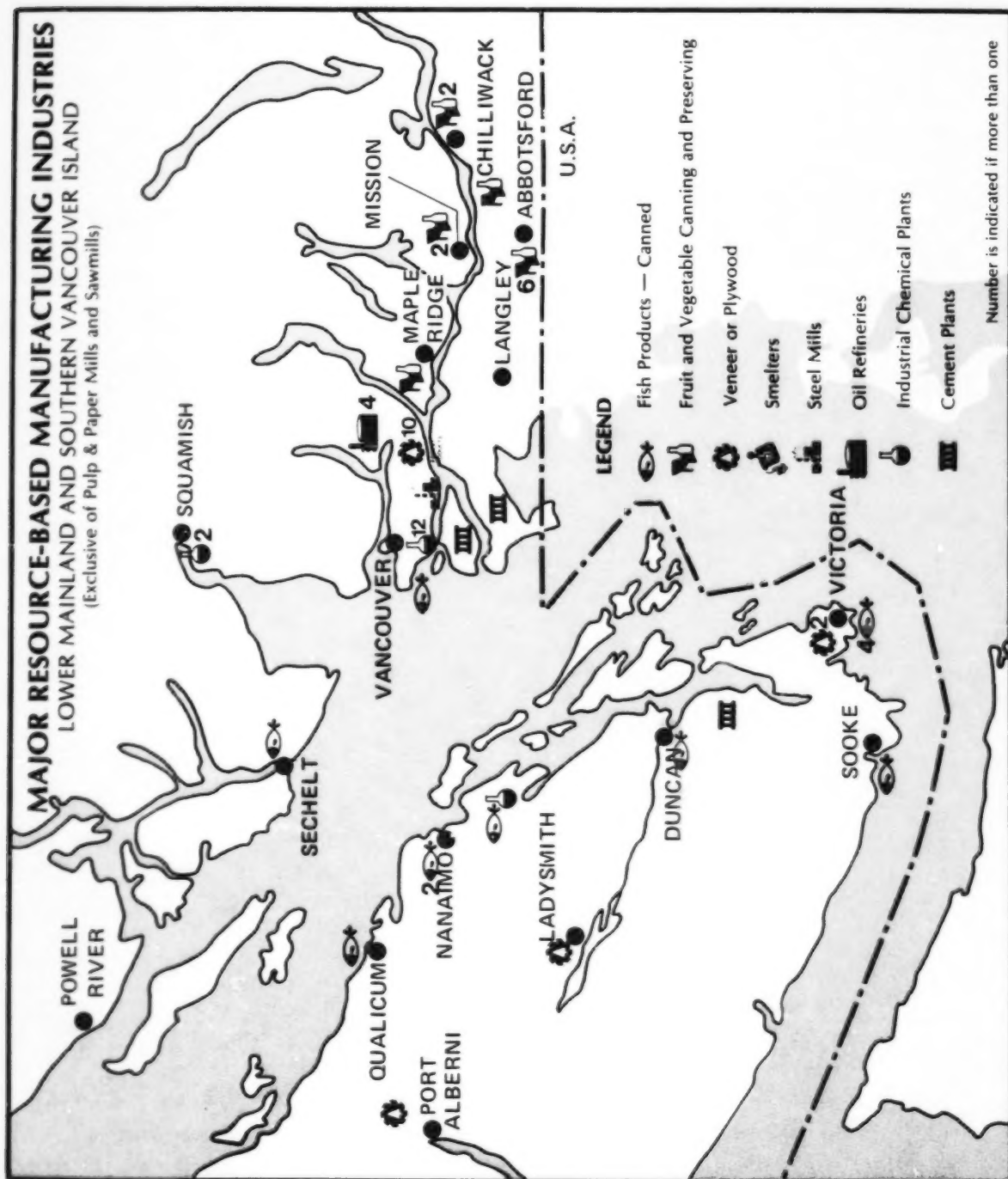
- Oil Refineries
- Industrial Chemical Plants
- Cement Plants

Number is indicated if more than one.

MAJOR RESOURCE-BASED MANUFACTURING INDUSTRIES

LOWER MAINLAND AND SOUTHERN VANCOUVER ISLAND

(Exclusive of Pulp & Paper Mills and Sawmills)



TRADE

Exports

The development of large resource based export industries has been the prime factor in the Province's economic growth. British Columbia is a rapidly expanding producer of an increasingly diversified range of manufactured natural resource products. Annually, approximately 55 percent of the Provincial commodity output is marketed in other countries.

Exports of British Columbia products in 1978 were estimated to be worth \$7.6 billion, an increase of 19.8 percent over 1977. The United States, traditionally the largest market, absorbed nearly 55.6 percent of British Columbia product exports in 1978. Japan, which has grown to become the Province's second largest market, received 20.6 percent of total British Columbia products exported in 1978. The United Kingdom, which accounted for 39.0 percent of the total value of British Columbia products exported in 1939, has steadily declined in relative importance, receiving only 4.7 percent in 1978. The remainder of the European Economic Community bought \$711.6 million worth of British Columbia products in 1978, accounting for 9.4 percent of the total.

The most important British Columbia product exports include lumber, pulp, coal, newsprint, crude petroleum, natural gas and refined non-ferrous minerals. Other significant exports include fish products, metals in ores and a wide range of manufactured products.

EXPORTS OF BRITISH COLUMBIA PRODUCTS TO PRINCIPAL COUNTRIES, 1968, 1973, 1977 and 1978

(Millions of Dollars)

	1968		1973		1977		1978	
	Value	Percent	Value	Percent	Value	Percent	Value	Percent
United States	1,044.2	56.7	2,009.4	52.6	3,423.7	54.3	4,202.1	55.6
Japan	297.6	16.2	924.5	24.2	1,225.4	19.4	1,559.2	20.6
United Kingdom	188.3	10.2	325.8	8.5	359.8	5.7	352.0	4.7
Other European Common Market countries	144.8	7.9	295.4	7.7	647.5	10.3	711.6	9.4
Australia	39.7	2.2	70.9	1.9	123.0	1.9	127.1	1.7
Other Countries	126.3	6.8	194.9	5.1	528.3	8.4	606.0	8.0
	<u>1,840.9</u>	<u>100.0</u>	<u>3,820.9</u>	<u>100.0</u>	<u>6,307.7</u>	<u>100.0</u>	<u>7,558.0</u>	<u>100.0</u>

Exports of all products through British Columbia customs ports increased from \$2.2 billion in 1968 to \$9.8 billion in 1978. This figure is substantially higher than that for British Columbia product exports because the Province's transportation systems - the railroads and ports in particular - handle large volumes of products originating in other parts of Canada. The Prairie Provinces account for the major part of this traffic, with grain, potash, coal, crude oil, natural gas and oilseeds being the leading commodities shipped.

FOREIGN EXPORTS OF PRINCIPAL BRITISH COLUMBIA PRODUCTS,
1968, 1973, 1977 and 1978

(Millions of Dollars)

	<u>1968</u>	<u>1973</u>	<u>1977</u>	<u>1978</u>
Lumber	525.7	1,279.7	1,922.8	2,513.6
Pulp	301.4	563.9	1,022.2	1,092.6
Coal	4.5	99.9	397.7	447.4
Newsprint	147.6	198.9	369.1	429.7
Fish products	63.3	186.3	264.7	374.1
Natural gas	33.5	91.8	334.3	334.7
Aluminum ingots	129.9	106.1	238.0	317.5
Copper ore and concentrates	90.1	438.4	261.5	245.5
Cedar shingles and shakes	44.7	73.9	134.6	175.5
Molybdenum concentrates	33.7	46.3	131.8	122.8
Zinc ores and ingots	7.7	87.5	96.3	107.1
Plywood (softwood)	45.9	62.1	71.5	106.0
Paper (except newsprint)	14.5	42.5	76.6	80.7
Lead ores and ingots	3.4	35.1	57.8	67.0
All other products	394.8	490.5	928.8	1,143.8
	<u>1,840.7</u>	<u>3,802.9</u>	<u>6,307.7</u>	<u>7,558.0</u>

Imports

The following table displays the fact that British Columbia's most important markets are also the major suppliers of the products imported through this Province's customs ports. A large proportion of these imports is undoubtedly destined for use in the Province but there are no statistics on the volume of shipments to other parts of Canada.

TOTAL IMPORTS THROUGH BRITISH COLUMBIA CUSTOMS PORTS BY PRINCIPAL COUNTRIES,
1968, 1973, 1977 and 1978

(Millions of Dollars)

	<u>1968</u>		<u>1973</u>		<u>1977</u>		<u>1978</u>	
	<u>Value</u>	<u>Percent</u>	<u>Value</u>	<u>Percent</u>	<u>Value</u>	<u>Percent</u>	<u>Value</u>	<u>Percent</u>
United States	548.9	59.0	1,126.4	55.7	1,761.0	49.9	2,188.2	48.7
Japan	131.8	14.2	446.9	22.1	887.7	25.2	1,229.1	27.3
Australia	22.9	2.5	73.4	3.6	163.8	4.6	150.5	3.4
United Kingdom	53.2	5.7	71.2	3.5	86.9	2.5	105.9	2.4
Other European								
Common Market								
countries	42.7	4.6	65.2	3.3	130.1	3.7	180.5	4.0
Other Countries	130.7	14.0	238.0	11.8	497.7	14.1	637.4	14.2
	<u>930.2</u>	<u>100.0</u>	<u>2,021.1</u>	<u>100.0</u>	<u>3,527.2</u>	<u>100.0</u>	<u>4,491.6</u>	<u>100.0</u>

The United States is the largest supplier accounting for 48.7 per-cent of imports through British Columbia customs ports in 1978. Products im-ported from the United States range from seasonal vegetables and citrus fruits to advanced technical goods such as computers and aircraft.

Imports from other industrialized nations such as the United King-dom, Japan and other members of the European Economic Community include mainly manufactured goods. These include automobiles, motorcycles, radios, machinery, processed foods and alcoholic beverages. Australia and New Zealand are import-ant suppliers of meat, canned and dried fruit, nickel in ores, alumina and raw sugar.

The seaports of British Columbia provide Canada's access to the Pacific Rim. It is for this reason the Lower Mainland area is one of the most important ports on the west coast of North America. In the past ten years the development of giant tankers and bulk carriers, container ships and self-loading automated vessels requiring small crews has increased the efficiency of ocean shipping, making it possible to ship a larger range of products over greater distances. The numerous upgrading and expansion programs underway or planned for British Columbia ports will continue to improve the ability of the Province's ports to handle Canada's export trade.

TRANSPORTATION

Railways

There are currently eight railway systems operating in British Columbia: the Canadian National Railways; the Canadian Pacific Railway Company; the British Columbia Railway; the Railway Freight Service of the British Columbia Hydro and Power Authority; the British Columbia Harbours Board Railway; the Northern Alberta Railways Company; the White Pass and Yukon Route and the Burlington Northern Railway. The combined length of operated mainline in the Province is 7,686.4 kilometres (4,776 miles), representing about 11 percent of the national total. In addition to this, four major United States lines interchange with Canadian lines at the border, or connect by barge. In 1978, total revenue freight loaded by the railways in British Columbia was estimated at 34.5 million tonnes. Most of this traffic was handled in the Lower Mainland, which is the terminus for British Columbia's three largest rail systems: CNR, CPR, and BCR.

The British Columbia Harbours Board Railway, completed in April 1970, heralded a new era in British Columbia resources development, marking the start of an almost continuous flow of coal from East Kootenay to the steel mills of Japan. Locomotives and specifically-designed gondola cars built for the Canadian Pacific Railway Company move coal from Sparwood and Fording River to Roberts Bank. It takes 72 hours to make the round trip over the 1,127 kilometre (700 mile) route with a full load of 81,000 tonnes.

Computerized operations control systems have been introduced by Canadian National Railways and Canadian Pacific Railway Company in order to speed up traffic handling and increase traffic capacity in the Lower Mainland. Also, both companies are nearing completion on double tracking programs which will improve access to the Lower Mainland and increase over-all operating capacity between Alberta points and Vancouver.

The British Columbia Railway achieved a record volume of carloadings in 1978. Total loadings, at 154,850, were 2 percent above the previous record achieved in 1977 and 30 percent higher than 1976 loadings.

On April 1, 1978 VIA Rail Canada was made a Crown Corporation responsible for the management of rail passenger services previously operated by CN and CP Rail. The Corporation is to develop an improved, attractive and efficient intercity rail passenger service that will also reduce the cost to Government.

Trucking and Highways

There are 42,159 kilometres (26,349 miles) of open highways in British Columbia of which 17,243 kilometres (10,724 miles) are paved. An additional 6,881 kilometres (4,275 miles) of highways have been cleared or the rights of way established.

Construction work is underway on the Coquihalla Highway, a 4-lane, 113 kilometre (70 mile) route which will link the communities of Merritt and Hope and provide a new, shorter access route to the Interior and points east from Vancouver. The construction costs are estimated at \$250 million, making it one of the most expensive highway projects ever undertaken in British Columbia.

MAIN RAILROAD LINES



LEGEND

- Railways
- - - Proposed
- Inactive

- BCR British Columbia Railway
- CNR Canadian National Railway
- CPR Canadian Pacific Railway
- BNI Burlington Northern Inc.
- NAR Northern Alberta Railway

The movement of freight by motor truck is an important component of British Columbia's transportation system. There are over 500 for-hire trucking firms in the Province and their gross transportation revenue (all classes of carriers) was approximately \$250 million in 1977. During the 1978 licensing year 1,060,345 passenger vehicles and 392,336 commercial vehicles were licensed in the Province.

Ferries

Since commencement in 1960, the British Columbia ferry service, now operated by the British Columbia Ferry Corporation, a Crown Corporation, has had unparalleled growth. From an initial two vessels, two ports and 190 employees, the service has grown to 24 ships along 12 routes and employs nearly 3,000 people. During the fiscal year ending March 31, 1979, over 10.4 million passengers and 3.8 million vehicles were carried.

Continued growth of ferry traffic has led to the installation of platform decks and to the lengthening of vessels by adding midsections. The "stretched" ships now have a capacity of 200 cars. A truck and trailer ferry with a capacity of 58 truck trailers, and two "super-ferries", each with a capacity of 361 vehicles and 1,300 passengers, also operate between the mainland and Vancouver Island.

The major terminals at Tsawwassen, Nanaimo and West Vancouver (Horseshoe Bay) are being expanded to accommodate increased ferry traffic. A major new B.C. Ferries route supplemented by feeder services which will provide passenger and roll-on, roll-off freight service to north and mid-coast communities, has been announced. This will be an expansion of the existing coastal services to Prince Rupert. A new ferry terminal at Bear Cove near Port Hardy, is now complete and has become the southern terminus of the service to Prince Rupert, replacing the Kelsey Bay terminal and reducing the route by about 120 kilometres.

Canadian Pacific Steamships also operates a twice daily ferry service between downtown Vancouver and Nanaimo on Vancouver Island. Black Ball Transport Inc., and Washington State Ferries operate between Vancouver Island and the United States. The Princess Marguerite, operated by the British Columbia Steamship Company Ltd., a Crown Corporation, operates between Victoria and Seattle each year from May through September. Ferry service is also provided on 11 coastal routes by the Ministry of Transportation, Communications and Highways, utilizing a fleet of 13 vessels. For the year ended March 31, 1978, 2,182,812 passengers and 770,019 vehicles were carried, compared with 2,390,916 passengers and 897,502 vehicles the previous fiscal year. The Highways service also includes a vast array of river and lake ferries throughout the Province. A passenger ferry service across Burrard Inlet, connecting North Shore communities with downtown Vancouver has been in operation since June 1977 and has carried over 7 million passengers.

Shipping

The leading ports in British Columbia are Vancouver, New Westminster, Nanaimo and Prince Rupert. During 1978 a total of 8,258 vessels departed from British Columbia ports in international seaborne shipping, compared to 8,543 in 1977. A total of 55,116,276 tonnes of cargo was loaded for foreign destinations including trans-shipments. The Port of Vancouver reported a total tonnage throughput in 1978 of 45,500,000 tonnes.

MAIN HIGHWAY AND FERRY ROUTES



LEGEND

- Ferry Routes
- Main Highways

Coastal shipping plays an important role in the movement of cargo and passengers to and from remote communities in British Columbia. In 1978, 12,967,509 tonnes of coastal cargo were loaded and 14,008,533 tonnes unloaded.

The present deep-sea terminal at Roberts Bank, constructed in the late 1960's, is part of the port of Vancouver. It consists of a 20 hectare coal port terminal at the end of a 5 kilometre causeway. The complex is presently handling the export of some 7.3 million tonnes of British Columbia coal annually from the Kaiser and Fording coal mines in the East Kootenays. In March, 1979 the National Harbours Board's proposed full-scale (130 hectare) expansion of the Roberts Bank port was rejected by the Federal Environmental Assessment Review Panel. The Panel stated however, that a smaller expansion of about 40 hectares could be carried out with minimum disruption to the environment if certain recommendations were followed.

Two new Vancouver facilities came into operation in 1975. One is the Vanterm container terminal which comprises a total area of 31 hectares with two 275-metre container berths, one 230 metre roll on/roll off berth, and a berthing length of 425 metres for general cargo. The other is the Lynnterm deep-sea cargo facility comprising a dock terminal with an area of 27 hectares, and an industrial park with an area of 12 hectares.

A multi-million dollar expansion project at the Port of Prince Rupert is being considered by the federal and provincial governments to permit greater movement of bulk commodities from Western Canada. Coal and grain facilities will make up the bulk of the proposed expansion. Work has begun on the Port of Nanaimo's Duke Point project. The facility is seen as a 3 berth development with each berth costing \$10.5 million and having a capacity of 545,000 tonnes.

Air Services

There are 94 carriers based in British Columbia. Scheduled and charter services for passengers, freight and mail are available to foreign and domestic destinations. Within the Province there are over 200 land-based airports, 63 water based facilities, and 23 heliports. In 1978, Vancouver International Airport handled 5.8 million passengers and 60.6 million kilograms of freight. Victoria Airport handled 517,783 passengers and 1.4 million kilograms of freight in 1978.

The Government of British Columbia has implemented a \$30 million program (\$6 million per year for 5 years) to improve airport facilities in the outlying parts of the Province. The intent is to make smaller communities more attractive to residents and the business community by improving access by air. The program also has significant implications for air ambulance and forest management services. Examples of work financed to date include paving and extension of runways, installation of runway lights and provision of navigational aids.

HUMAN RESOURCES

Population

Over the 1961-1976 period (latest census data), British Columbia had the highest rate of population increase of all Canadian provinces, increasing from 1,629,082 to 2,466,608. Net migration has traditionally accounted for almost two-thirds of this increase, but since 1974 has fallen off sharply due to the drawing effect of the buoyant Alberta economy. For this reason population growth in British Columbia has slowed in recent years. As of April 1, 1979 the population of British Columbia reached an estimated 2,562,600 people.

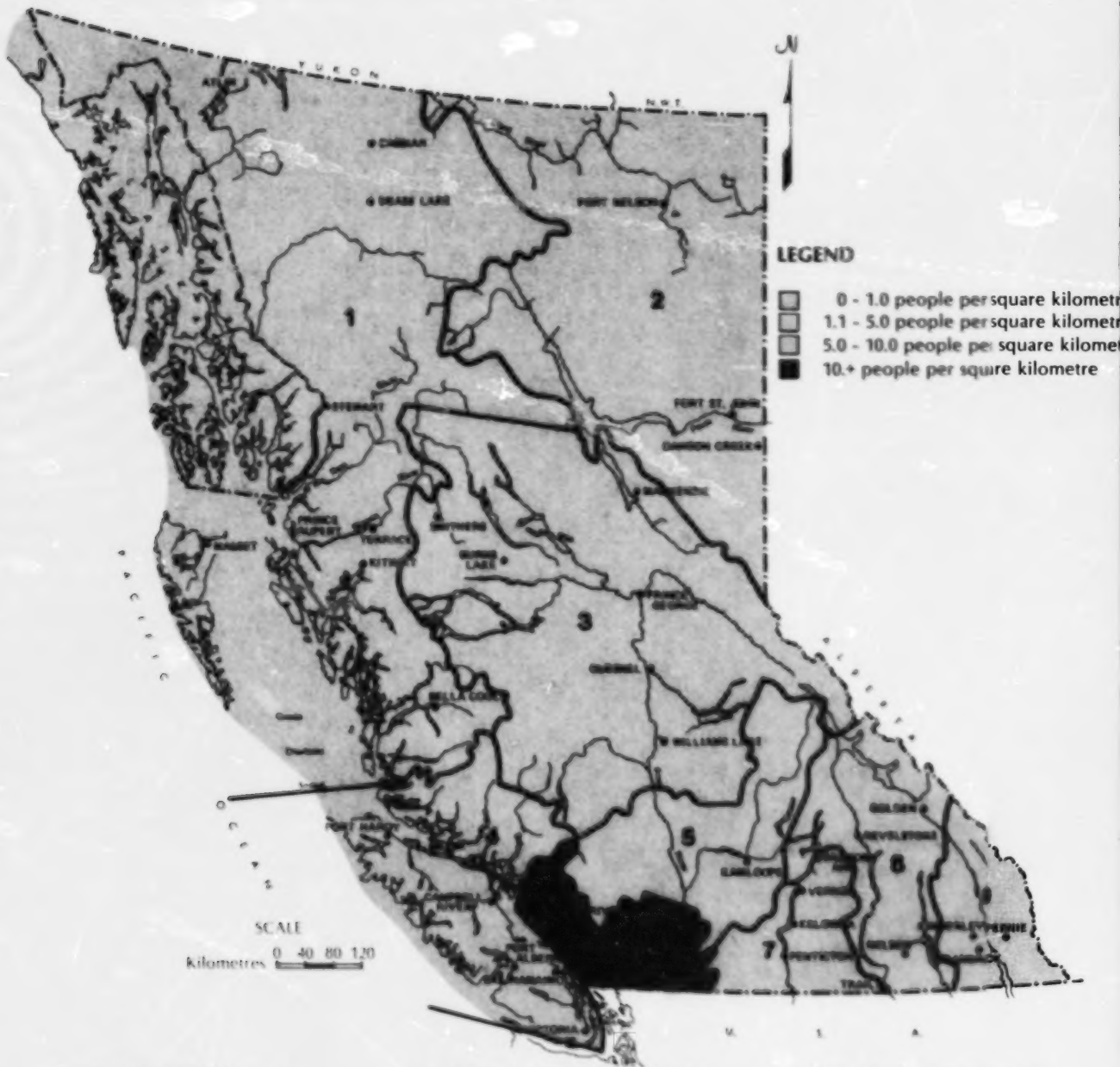
The greatest numerical increase in population over the 1961-76 period occurred in the Greater Vancouver census division, but the largest percentage increases occurred in Central Okanagan, Fraser-Fort George and Central Fraser Valley. The Kootenay Boundary census division experienced virtually zero growth while population in the Central Coast region actually declined over the 1961-1976 period.

POPULATION OF BRITISH COLUMBIA BY CENSUS DIVISIONS (REGIONAL DISTRICTS)¹ 1961 - 1976

Census Divisions	1961	1971	1976	Percent Changes 1971 - 1976
1. Alberni-Clayoquot	25,921	31,747	32,174	1.3
2. Bulkley-Nechako	17,437	27,145	32,617	20.2
3. Capital	161,947	204,803	230,592	12.6
4. Cariboo	27,103	39,357	51,616	31.1
5. Central Fraser Valley	37,601	58,063	87,927	51.4
6. Central Kootenay	41,349	44,791	48,962	9.3
7. Central Okanagan	27,460	50,177	71,254	42.0
8. Columbia-Shuswap	20,067	30,641	35,569	16.1
9. Comox-Strathcona	30,876	47,345	57,186	20.8
10. Cowichan Valley	30,749	38,988	47,100	20.8
11. Dewdney-Alouette	29,835	40,096	52,430	30.8
12. East Kootenay	29,739	39,720	46,450	16.9
13. Fraser-Cheam	38,016	46,119	51,430	11.5
14. Fraser-Fort George	31,726	64,364	79,616	23.7
15. Greater Vancouver	790,741	1,028,334	1,085,242	5.5
16. Kitimat-Stikine	23,031	37,326	38,718	3.7
17. Kootenay Boundary	31,409	31,396	31,706	1.0
18. Mount Waddington	9,131	10,408	12,476	19.9
19. Nanaimo	33,076	48,006	61,879	28.9
20. North Okanagan	25,694	34,039	46,860	37.7
21. Ocean Falls (Central Coast)	6,260	4,215	4,184	-0.7
22. Okanagan-Similkameen	33,486	42,752	51,520	20.5
23. Peace River-Liard	31,352	43,996	44,842	1.9
24. Powell River	14,099	18,536	19,648	6.0
25. Skeena-Queen Charlottes	17,592	22,299	22,662	1.6
26. Squamish-Lillooet	9,960	13,081	15,769	20.5
27. Stikine (Unorganized)	1,224	1,470	1,545	5.1
28. Sunshine Coast	7,325	9,655	12,508	29.5
29. Thompson-Nicola	44,876	75,752	92,126	21.6
BRITISH COLUMBIA TOTAL	1,629,082	2,184,621	2,466,608	12.9

¹ Latest Census data available.

POPULATION



1. SKEENA-STIKINE REGION
Area = 250,245.9 sq. km
Population = 67,109
Population per sq. km = 0.3

2. PEACE RIVER-LIARD REGION
Area = 178,868.8 sq. km
Population = 44,842
Population per sq. km = 0.3

3. CARIBOO-FORT GEORGE REGION
Area = 192,463.6 sq. km
Population = 163,849
Population per sq. km = 0.9

4. VANCOUVER ISLAND AND COAST REGION
Area = 56,971.7 sq. km
Population = 441,407
Population per sq. km = 7.7

5. LILLOOET-THOMPSON REGION
Area = 61,405.7 sq. km
Population = 107,895
Population per sq. km = 1.8

6. LOWER MAINLAND REGION
Area = 25,796.1 sq. km
Population = 1,309,187
Population per sq. km = 50.8

7. OKANAGAN-BOUNDARY REGION
Area = 29,365.7 sq. km
Population = 201,340
Population per sq. km = 6.9

8. CENTRAL KOOTENAY REGION
Area = 53,416.8 sq. km
Population = 84,531
Population per sq. km = 1.6

9. EAST KOOTENAY REGION
Area = 28,344 sq. km
Population = 46,450
Population per sq. km = 1.6

Labour Force

British Columbia's labour force grew more rapidly than for Canada as a whole in 1978 due to migration into the Province as well as to the rapid increase in the female participation rate (percentage of working-age females in the labour force).

The Province's labour force (defined essentially as all persons of working age actively seeking work) reached a monthly average of 1,192 thousand persons in 1978, of which 725 thousand were male and 467 thousand were female. In 1977 the annual average number of persons in the labour force was 1,144 thousand, consisting of 711 thousand males and 433 thousand females. The growth of the female component of the labour force in the last decade has far outpaced the growth of the male component.

LABOUR FORCE STATISTICS, BRITISH COLUMBIA

Category	1961	1976	1977	1978
Labour Force (000's)	575	1,116	1,144	1,192
Employed (000's)	527	1,020	1,047	1,093
Unemployed (000's)	48	96	97	98
Male Participation Rate	76.6	77.1	77.5	77.3
Female Participation Rate	27.0	45.8	45.9	48.3

Salaries and wages paid in British Columbia are generally higher than the Canadian average. Average weekly earnings in 1978 were \$301.26 in British Columbia compared with the average for Canada as a whole of \$265.37. This wage differential has existed for several decades, and is one of the primary reasons for historically high levels of immigration to the Province.

LABOUR FORCE AND AVERAGE WEEKLY WAGES AND SALARIES, BRITISH COLUMBIA, 1979

Sector	Labour Force ¹		Average Weekly ² Wages & Salaries (\$)
	(000's)	% of Total	
Agriculture	29	2.3	n.a.
) Fishing			n.a.
Other Primary) Forestry	55	4.5	413.66
) Mining			407.57
Manufacturing	193	15.7	359.57
Construction	85	6.9	457.69
Transportation, Communications & Utilities	121	9.8	358.63
Trade	215	17.5	244.69
Finance, Insurance & Real Estate	73	5.9	264.83
Service	369	30.0	194.51
Public Administration	85	6.9	n.a.
Other (unclassified)	7	0.6	n.a.
TOTAL	1,232	100.0	312.19

¹ May 1979.

² January 1979.

One of the most important attributes of any labour force is its quality of skills and education. British Columbia's labour force is one of the most versatile and best-educated in Canada. Approximately 33.6 percent of the labour force in this Province in May 1979 had at least some post-secondary education compared with 32 percent for Canada as a whole.

BRITISH COLUMBIA LABOUR FORCE BY LEVEL OF EDUCATION, MAY 1979

	Labour Force			Unemployment
	Number (^{'000})	Employed (^{'000})	Unemployed (^{'000})	Rate (%)
1. 0-8 years	126	114	12	9.7
2. Some high school and no post-secondary	692	630	62	8.9
3. Some post-secondary	145	135	10	6.8
4. Post secondary certificate or diploma	125	118	7	5.4
5. University degree	144	139	5	3.5
TOTAL	1,232	1,136	96	7.8